Public Address - Voice Alarm

Databook - June 2014

Latin America

BOSCH
Invented for life

Bosch Products
89 / 110 products
Filters (1)
Manage filters
Specification
Installation
Environment
Accessories
Cabinet loudspeaker
LB1-UM06E-1
EN54
Cabinet loudspeaker
LBC-3018/01
EN54
Cabinet loudspeaker
LB1-UW06-Fx
Collection
Favourites
Tools
BOSCH
Public Address
Loudspeaker Selection Guide
BOSCH

Public Address - Voice Alarm

Databook - June 2014

Sound diffusion systems to deliver timely messages with clear and appropriate instructions. Provide institutional accurate and effective ads that increase productivity and differentiate your business, making it safer.
Versatility, reliability and ease of use: it is the base of the Plena Easy Line. A perfect solution for small to medium environments. It can be mix and match several elements of the system to fit virtually any need, from a simple Public Address system to a large multi-zone custom configuration.

Sistemas de difusión de sonido para entregar mensajes claros y oportunos con instrucciones apropiadas. Brindan anuncios institucionales, precisos y efectivos que aumentan la productividad y diferenciarán su negocio, haciéndolo más seguro.
Versatilidad, confiabilidad y facilidad de uso: esa es la base de la megafonía Plena Easy Line. Una solución perfecta para entornos pequeños y medianos. Se pueden combinar y adaptar varios elementos del sistema para ajustarse prácticamente a cualquier necesidad: desde un sencillo sistema de megafonía hasta una amplia configuración multizona personalizada.

Sistemas de difusão de som para proporcionar mensagens claras e oportunas com instruções apropriadas. Oferecem anúncios institucionais, precisos e efetivos que aumentam a produtividade e diferenciam seu negócio, tornando-o mais seguro.
Versatilidade, confiabilidade e facilidade de uso: essa é à base da sonorização Plena Easy Line. Uma solução perfeita para locais pequenos e de médio porte. Podem combinar e adaptar diversos elementos do sistema para ajustar praticamente qualquer necessidade: desde um simples sistema de sonorização até uma ampla configuração multizona* personalizada.

In addition to an extensive range of superior products, Bosch also offers you top-notch support so that you can always offer your customers ideal solutions. A key element is training. Under the expert guidance of our product specialists, you can learn all about the products and systems available from Bosch.

For more information on our products, sales support or training, please visit our website **la.boschsecurity.com** or contact your local Bosch representative. The book includes a list of addresses in different countries.Bosch Security Systems will help you to grow your business by working closely with you to win, support and maintain top quality communication and security installations. We are confident that our unique combination of innovative, top-quality products and over 80 years of experience serving the market will let you offer ideal solutions for all of your customers' needs.

Además de una amplia gama de productos de alta calidad, Bosch también le ofrece soporte de primer nivel, para que usted le pueda ofrecer a sus clientes las mejores soluciones en todo momento. Uno de los elementos claves es la formación. Bajo la capacitación experta de nuestros especialistas en el producto, usted puede aprender todo acerca de los productos y sistemas disponibles de Bosch.

Para más información sobre nuestros productos, soporte de ventas o capacitación, por favor visite nuestro sitio web **la.boschsecurity.com** o contacte a su representante local de Bosch. El libro incluye una lista de direcciones en diferentes paises. Bosch Security Systems le ayudará para hacer que su negocio crezca, trabajando estrechamente con usted para ganar, apoyar y mantener una comunicación e instalaciones de seguridad de alta calidad. Estamos seguros de que nuestra combinación única de innovación de productos de alta calidad y más de 80 años de experiencia sirviendo al mercado le permitirá que ofrezca soluciones ideales para todas las necesidades de sus clientes.

Ademais de uma extensa gama de produtos de alta qualidade, a Bosch também oferece suporte de primeiro nível para que você possa oferecer a seus clientes as melhores soluções. Um dos elementos chaves é o treinamento. Com a capacitação de nossos especialistas, você pode aprender sobre todos os produtos e sistemas disponíveis da Bosch.

Para mais informações sobre os nossos produtos, suporte de vendas ou treinamentos, por favor, visite nosso web site **la.boschsecurity.com** ou contate o representante local Bosch. O livro inclui uma lista de endereços dos diversos países. A Bosch Security System ajudará o crescimento de seu negócio através do trabalho em conjunto para ganhar, apoiar e manter uma comunicação e instalações de segurança de alta qualidade. Estamos confiantes de que nossa combinação única de inovação de produtos de alta qualidade e mais de 80 anos de experiência servindo o mercado permitirá oferecer soluções ideais para todas as necessidades de seus clientes.

Tradition of Quality and Innovation

For over 125 years, the Bosch name has stood for quality and reliability.

Thanks to its continuous investment in research and development of new technologies, Bosch generated 14 patents per working day, allowing you maintain the excellent performance of its products.

Bosch Security Systems proudly offers a wide range of fire, intrusion, social alarm, CCTV, management and communication systems and components to help you find the solution for any application. We are the global supplier of choise for innovative technology backed by the highest level of service and support.

When you need solutions you can rely on, choose Bosch.

Tradición de Calidad e Innovación

Por más de 125 años, el nombre Bosch ha representado calidad y confiabilidad.

Gracias a su continua inversión en la investigación y el desarrollo de nuevas tecnologías, Bosch genera 14 patentes por día laboral, lo que le permite mantener el excelente desempeño de sus productos.

Bosch Sistemas de Seguridad provee una amplia gama de productos para CCTV, detección de incendio, intrusión, control de accesos, sistemas de audio evacuación, soluciones de comunicación para congresos y la integración de sistemas.

Bosch, la mejor solución en seguridad para cada aplicación.

Tradição de Qualidade e Inovação

Há mais de 125 anos o nome Bosch representa qualidade e confiabilidade.

O constante foco e investimentos em pesquisa e desenvolvimento de novas tecnologias proporcionam à Bosch gerar 15 patentes por dia de trabalho, o que permite manter o excelente desempenho de seus produtos.

A Bosch Sistemas de Segurança oferece uma linha completa de produtos de sistemas eletrônicos de segurança e sonorização: sistemas de vídeo, controle de acesso, intrusão, detecção de incêndio, sistemas de abandono por voz, soluções de comunicação para congressos e integração de sistemas.

Bosch, soluções integradas de sistemas eletrônicos de segurança e comunicação.

Bosch Security Systems in Latin America:

Brazil
Central office for Latin America
Robert Bosch Ltda. Sistemas de Segurança
Tel: +55 (19) 2103-2860
Fax: +55 (19) 2103-2862

Mexico
Robert Bosch S. de R.L. de C.V. Sistemas de Seguridad
Tel: +52 (55) 5284-4373
Fax: +52 (55) 5284-3096

Argentina, Uruguay and Paraguay
Robert Bosch Argentina Industrial S.A.
Tel.: +54 11 4778 5211
Fax +54 11 4778 5244 ext. 800

Colombia, Central America, Surinam and Guyanas
Robert Bosch Ltda.
Tel: +57 (1) 658-5010 ext.118

Peru, Bolivia and Ecuador
Robert Bosch S.A.C.
Tel: + 51 (1) 219 0332 ext. 1111

Chile
Robert Bosch S.A.
Tel: +56 (2) 2405-5530 / 5531
Fax: + 56 (2) 2405-5599

Venezuela
Robert Bosch S.A. Venezuela
Tel: +58 (212) 207-4541 / 4545 / 4511
Fax: +58 (212) 239-6063

Panama
Robert Bosch Panamá S.A.
Tel: +5 (07) 301-0960

Website: la.boschsecurity.com
Email: latam.boschsecurity@bosch.com

Online Product Catalog - la.boschsecurity.com

You are looking for information about our products?
You need documentation for the installation, operation or handling of a certain product?
You want to recommend a product to somebody
else? Our online product catalog offers you all of these information and answers your questions with a few clicks!

Functionalitites

- Intelligent search function for products
- Download Library for documents and software
- Overview about last month’s updated software and documents for download
- Printer friendly optimization of all product-related information
- “Click for big” – zoom view of all product images
- Tell a friend function
- Search function to find Bosch contacts and locations worldwide

Security Systems Latin America
BOSCH
LTC 0630 Series Dinion2X Day/Night Camera

View of a product with the complete archive of product related information

Product information

- Quick access to all product catalogs
  - CCTV
  - IP Network Video
  - Intrusion Alarm Systems
  - Fire Alarm Systems
  - Congress and Conference
  - Public Address
  - Voice Evacuation

- Detailed product information in different languages for download
  - Product images
  - Brochures
- Technical information
  - Data sheets
  - Installation, operation and user guides
  - Application guides
  - A/E specifications

Visit our website and convince yourself!
la.boschsecurity.com

Advantage Line 1

PA, Commercial Sound and Emergency Sound 2

Digital PA and Emergency Sound 3

Microphones 4

Loudspeakers 5

Advantage Line 8

Sound Projectors 9

LBC 3941/11 Sound Projector 9
LBC 3094/15 Sound Projector 11
LBC 3095/15 Pendant Sphere Loudspeaker 12

Plena Easy Line 14

PLE-1MAxx0-EU Plena Mixer Amplifier 14
PLE-1MExx0-xx Plena Mixer Amplifier 16
PLE-1CS Plena All-Call Call Station 18

Wired Microphones 20

LBC 2900/xx Unidirectional Handheld Microphones 20
LBB 1949/00 Gooseneck Condenser Microphone 22
LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone 23

Wireless Microphones 25

MW1-RX-Fx Wireless Microphone Receivers 25
MW1-LTX-Fx Wireless Belt-pack Transmitters 26

Cabinet Loudspeakers 28

LB1-UW06-Fx Cabinet Loudspeakers 28
LB1-UW06x-x Cabinet Loudspeakers 30
LB1-CW06-x Corner Cabinet Loudspeakers 32
LB1-UW12-x Cabinet Loudspeakers 34
LB1-BW12-x Bidirectional Cabinet Loudspeakers 36

Column Loudspeakers 38

LA1-UW24-x Column Loudspeakers 38
LA1-UW36-x Column Loudspeakers 40

Ceiling Loudspeakers 42

LBC 3950/01 Ceiling Loudspeaker 42
LBC 3951/11 Ceiling Loudspeaker 44
LHM 0606/xx Ceiling Loudspeaker 46

Premium Sound 48

LB2-UCxx-x Premium-sound Cabinet Loudspeaker Range 48

Horn Loudspeakers 50

LBC 34xx/12 Horn Loudspeakers 50

Volume Controls 52

LBC 14x0/x0 MK Volume Controls and LBC 1430/10 Program Selector 52
LBC 14xx/x0 U40 Volume Controls and LBC 1431/10 Program Selector 54

PA, Commercial Sound and Emergency Sound 57

Plena Easy Line 58

PLE-10M2-EU Plena Mixer 58
PLE-2MAxx0-EU Plena Mixer Amplifier 61
PLE-1MAxx0-EU Plena Mixer Amplifier 65
PLE-1Pxx0-EU Plena Amplifier 68
PLE-2CS Plena Two-zone Call Station 70
PLE-1CS Plena All-Call Call Station 72
PLE-WP3S2Z-EU Wall Panel 74
PLE-1MExx0-xx Plena Mixer Amplifier 75
PLE-SDT Plena Easy Line SD Tuner BGM source 78

Plena Public Address Solutions 80

LBB 1925/10 Plena System Pre-Amplifier 80
LBB 1941/00 Plena Call Station 83
LBB 1946/00 Plena Six-zone Call Station 85
LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone 87
LBB 1930/20 Plena Power Amplifier 89
LBB 1935/20 Plena Power Amplifier 91
LBB 1938/20 Plena Power Amplifier 93
PLN-1P1000 Plena Power Amplifier 95
PLN-1LA10 Plena Loop Amplifier 97
PLN-2AIO120 BGM/Paging System 99
LBB 1965/00 Plena Message Manager 102
LBB 1968/00 Plena Feedback Suppressor 105
PLN-6TMW Plena Weekly Timer 107

PLENA matrix 109

PLM-8M8 PLENA matrix 8 Channel DSP Matrix Mixer 109
PLM-4Px2x PLENA matrix DSP Amplifiers 112
PLM-8CS PLENA matrix 8 Zone Call Station 115
PLM-WCP PLENA matrix Wall Control Panel 117

Plena Public Address and Voice Alarm 119

Plena Voice Alarm System Overview 119
LBB 1990/00 Plena Voice Alarm Controller 120
LBB 1992/00 Plena Voice Alarm Router 123
LBB 1956/00 Plena Voice Alarm Call Station 125
LBB 1957/00 Plena Voice Alarm Keypad 127
LBB 1995/00 Plena Voice Alarm System Fireman's panel 128
LBB 1996/00 Plena Voice Alarm Remote Control 130
LBB 1997/00 Plena Voice Alarm System Remote Control Extension 132
LBB 1998/00 Plena Voice Alarm System Remote Kit 134
LBB 1999/00 Plena Voice Alarm System Remote Control Extension Kit 136
PRS-1AIP1 IP Audio Interface 138
PLN-1EOL Plena End-of-Line Boards 140

Digital PA and Emergency Sound 143

Praesideo System 144

Praesideo - Digital Public Address and Emergency Sound System 144
PRS-NCO3 Network Controller 148
PRS-NCO-B Network Controller 151
PRS-SW Praesideo Software 154
PRS-SWCS PC Call Server and PRS-SWCSL PC Call Server NCO Client 156
PRS-CSC PC Call Station Client 157
PRS-xPxxx and LBB 4428/00 Power Amplifiers 158
PRS-xBxxx Basic Amplifiers 162
PRS-16MCI Multichannel Interface 165
LBB 4430/00 Call Station Basic 167
LBB 4432/00 Call Station Keypad 169
PRS-CSNKP Numeric Keypad 171
LBB 4433/00 Call Station Kit 173
LBB 4434/00 Call Station Keypad Kit 175
PRS-CSI Call Station Interface 177
PRS-CSR Call Station Remote 179
PRS-CSRK Call Station Remote Kit 181
PRS-CRF Call Stacker 183
PRS-1AIP1 IP Audio Interface 185
LBB 4402/00 Audio Expander 187
LBB 4404/00 CobraNet Interface 189

Praesideo Peripherals 191

PRS-NSP Network Splitter 191
PRS-FIN, PRS-FINNA and PRS-FINS Fiber Interfaces 193
LBB 4440/00 Supervision Control Board 195
LBB 4441/00 Loudspeaker Supervision Board 197
LBB 4443/00 End of Line (EOL) Supervision Board 199
LBB 4416/xx Network Cables 201

Praesideo Accessories 203

LBB 4417/00 Set Network Connectors (20 pcs) 203
LBB 4418/00 Cable Connector Tool Kit 204
LBB 4418/50 Spare Cutting System (2 pcs) 205
LBB 4419/00 Cable Couplers (10 pcs) 206
LBB 4436/00 Set of Key Covers (10 pcs) 207
LBB 4446/00 Set of Supervision Board Brackets (10 pcs) 208

Praesideo - Configuration Examples 209

Praesideo - Configuration Examples 209
Example 1 - Factory 210
Example 2 - Sports Stadium 211
Example 3 - International Airport 212

Microphones 213

Wired 214

LBB 9080/00 Omnidirectional Dynamic Handheld Microphone 214
LBB 9081/00 Omnidirectional Dynamic Handheld Microphone 216
LBB 9082/00 Unidirectional Gooseneck Microphone 218
LBB 9099/10 Unidirectional Handheld Microphone 219
LBC 2900/xx Unidirectional Handheld Microphones 221
LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone 223
LBB 9600/20 Condenser Handheld Microphone 225

Wireless 227

MW1-RX-Fx Wireless Microphone Receivers 227
MW1-HTX-Fx Wireless Handheld Microphones 229
MW1-LTX-Fx Wireless Belt-pack Transmitters 232
MW1-HMC Head-worn Microphone 235
MW1-RMB Dual Rack-mounting Kit 236
MW1-LMC Lavelier Microphone 237

Accessories 238

LBC 1208/40 Microphone Cable 238
LBC 1215/01 Microphone Clamp 239
LBC 1221/01 Floor Stand 240
LBC 1226/01 Adjustable Boom 241
LBC 1227/01 Table Stand 242

Loudspeakers 243

Cabinet 244

LB1-UM06E-1 Metal Cabinet Loudspeaker 244
LBC 3011/x1 Panel Loudspeakers 247
LBC 3018/00 Metal Cabinet Loudspeaker 251
LB1-UW06-Fx Cabinet Loudspeakers 253
LB1-UW06x-x Cabinet Loudspeakers 255
LB1-CW06-x Corner Cabinet Loudspeakers 258
LB1-UW12-x Cabinet Loudspeakers 260
LB1-BW12-x Bidirectional Cabinet Loudspeakers 262
LB2-UCxx-x Premium-sound Cabinet Loudspeaker Range 264
LB1-UMx0E Premium-sound Cabinet Loudspeaker Range 269
LB1-SW60 Subwoofer Cabinet 60W 275
LB3-PCx50 Premium Cabinet Loudspeakers 278

Column 283

LA1-UW24-x Column Loudspeakers 283
LA1-UW36-x Column Loudspeakers 286
LA1-UMx0E-1 Metal Column Loudspeakers 289
LA1-UMx0E Metal Column Loudspeakers 295

XLA 3200 Line Array 301

LBC 3200/00 Line Array Indoor Loudspeaker 301
LBC 3201/00 Line Array Indoor Loudspeaker 307
LBC 3210/00 Line Array Indoor/Outdoor Loudspeaker 314

Vari-directional Array 321

Vari-directional Array 321

Ceiling 329

LBC 3950/01 Ceiling Loudspeaker 329
LBC 3951/11 Ceiling Loudspeaker 332
LHM 0606/xx Ceiling Loudspeaker 334
LBC 3086/41 Ceiling Loudspeaker 337
LBC 3087/41 Ceiling Loudspeaker 340
LBC 3090/01 Ceiling Loudspeaker 343
LBC 3090/31 Ceiling Loudspeaker 346
LBC 3099/41 Ceiling Loudspeaker 349
LC1 Modular Ceiling Loudspeaker Range 351
LC4 Ceiling Loudspeaker Range 361
LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker 30W 366
LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker 30W 369
LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker 30W 372
LC2-PC60G6-8H Premium-sound High Ceiling Loudspeaker 60W 375
LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker 60W 378
LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker 64W 381

Sound Projectors 384

LBC 3941/11 Sound Projector 384
LBC 3094/15 Sound Projector 386
LBC 3095/15 Pendant Sphere Loudspeaker 388
LP1-BC10E-1 Bidirectional Sound Projector 390
LP1-UC10E-1 Unidirectional Sound Projector 393
LP1-UC20E-1 Unidirectional Sound Projector 396
LS1-UC20E-1 Pendant Sphere Loudspeaker 399
LBC 3432/02 Unidirectional Sound Projector 402
LS1-OC100E Hemi-directional Loudspeaker 405
LS1-OC100E-1 Hemi-directional Loudspeaker 409

Horn 412

LBC 34xx/12 Horn Loudspeakers 412
LBC 347x/00 Horn and Driver Loudspeaker Range 417
LBC 3482/00 Horn Loudspeaker 423
LBC 3483/00 Horn Loudspeaker 426
LBC 3484/00 Horn Loudspeaker 429
LBC 340x/16 Horn Loudspeakers 432
LBC 3700/00 Horn Loudspeaker 434
LBC 3428/00 Horn Loudspeaker 437
LBC 343x/00 Horn Loudspeakers 439
LH1-UC30E Music Horn Loudspeaker 441

Accessories 445

LBC 1252/00 Wall Mounting Bracket 445
LBC 1256/00 EVAC Connection Adapter 446
LBC 1259/01 Universal Floorstand 447
LBC 1085/00 Loudspeaker Cable 449
LBC 14x0/x0 MK Volume Controls and LBC 1430/10 Program Selector 450
LBC 14xx/x0 U40 Volume Controls and LBC 1431/10 Program Selector 454
LBC 14x2/x0 Japanese Volume Controls and LBC 1434/10 Program Selector 458
LBC 3081/02 Fire Dome 461
LBC 3082/00 Fire Dome 462
LBC 3091/01 Surface Mounting Box 463

Ingress Protection Definition 464

IP Rating 464

Advantage Line

1

Sound Projectors 9
Plena Easy Line 14
Wired Microphones 20
Wireless Microphones 25
Cabinet Loudspeakers 28
Column Loudspeakers 38
Ceiling Loudspeakers 42
Premium Sound 48
Horn Loudspeakers 50
Volume Controls 52

LBC 3941/11 Sound Projector

Features

- ▶ Excellent speech and music reproduction
- ▶ Very wide opening angle
- ▶ Modern unobtrusive styling
- ▶ Simple power setting
- ▶ Splash – waterproof

The LBC 3941/11 is a 6 W cost-effective sound projector. It features a very wide opening angle and unobtrusive styling. Water and dust protection to IP 65 make it suitable for indoor and outdoor use.

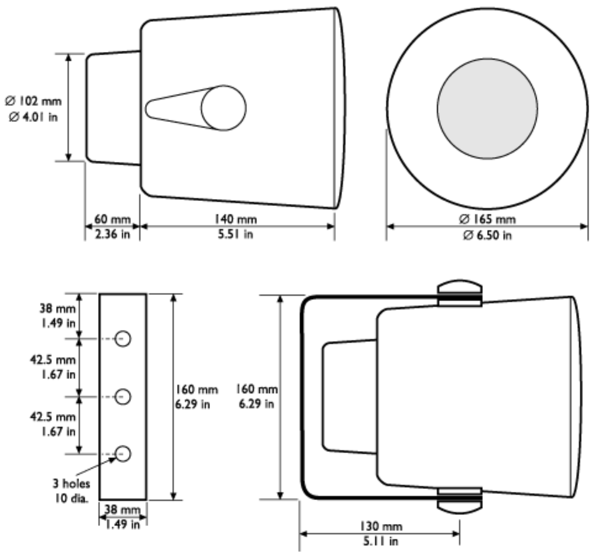
Certifications and approvals

Safety	acc. to EN 60065
Water and dust protection	acc. to EN 60529, IP 65
Self-Extinguishing	acc. to UL 94 V0

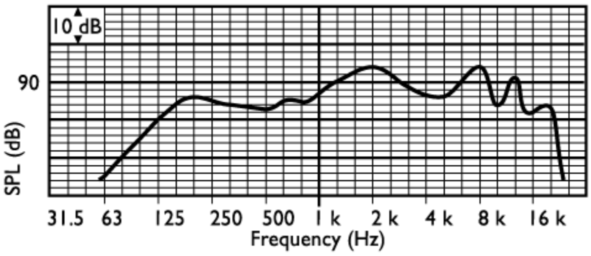
Region	**Certification**
Europe	CE

Installation/configuration notes

The sound projector is supplied with a steel mounting bracket painted in white. The bracket has three 10 mm holes, which can be used to easily mount the projector to walls and ceilings. The direction of the projector can be adjusted by means of two screws covered with white plastic covers. The unit is supplied with a 2 m color-coded five-core cable, with each color connected to a different primary tap on the matching transformer. This makes it easy to select full-power, half-power, quarter-power and eighth-power radiation without opening the unit during installation.



Dimensions in mm (in)



Frequency response

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (2 kHz, 1 m)	100 dB / 92 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 18 kHz
Rated voltage	100 V
Rated impedance	1667 ohm
Connection	2 m 5-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	165 x 200 mm (6.50 x 7.87 in)
Speaker diameter	100 mm (4 in)
Weight	1.5 kg (3.3 lb)

Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3941/11 Sound Projector
Sound projector 6 W, white ABS enclosure, wide opening angle, water and dust protected IP65, fixed 2 m connection cable.
Order number **LBC3941/11**

LBC 3094/15 Sound Projector

Features

- Suitable for speech and music reproduction
- Simple power setting
- 2 m fixed connection cable
- Splash-waterproof
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3094/15 is a sound projector for speech and music reproduction in indoor or outdoor applications such as shopping centers, factory grounds and sports fields.

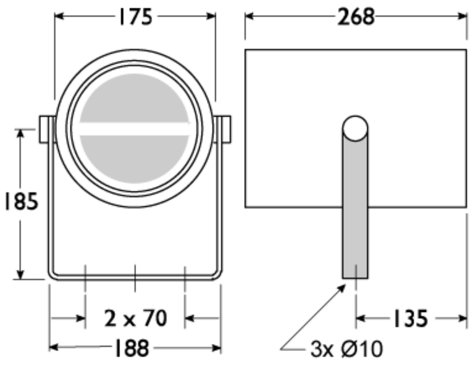
Certifications and approvals

Water and dust protection	acc. to EN 60529, IP 63

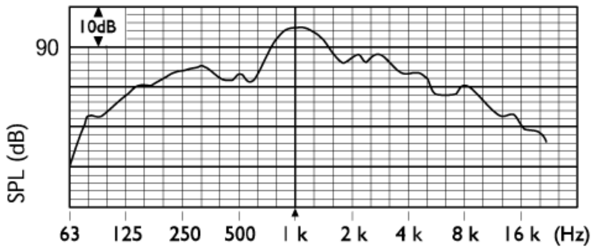
Region	Certification
Europe	CE

Installation/configuration notes

All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



Dimensions in mm



Frequency response

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	102 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to13 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 70°
Rated voltage	100 V
Rated impedance	1000 ohm
Connection	2 m 4-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	175 x 268 mm (6.9 x 10.5 in)
Weight	2.5 kg (7.3 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3094/15 Sound Projector
Sound projector 10 W, white ABS enclosure, water and dust protected IP63, fixed 2 m connection cable.
Order number **LBC3094/15**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3095/15 Pendant Sphere Loudspeaker

Features

- Suitable for speech and music reproduction
- Simple power setting
- 5 m fixed connection cable
- Splash-waterproof type
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3095/15 is a pendant sphere designed to be suspended from the ceiling via its connecting cable. The pleasing shape and neutral color make the pendant sphere models interesting architectural features in their own right.

Functions

The pendant sphere is splash waterproof and suitable for outdoor use and in environments with high humidity levels such as swimming pools.
Their excellent sound spread makes them ideal for use in buildings with high ceilings such as hypermarkets and superstores.
The enclosures are made from high-impact self-extinguishing ABS (according to class UL 94 V0) and are colored off-white. The pendant sphere is designed to be suspended from its color-matched connecting cable (easy to shorten for desired height). A cable clamp and ceiling cover are supplied.
They are not recommended for use in windy environments.

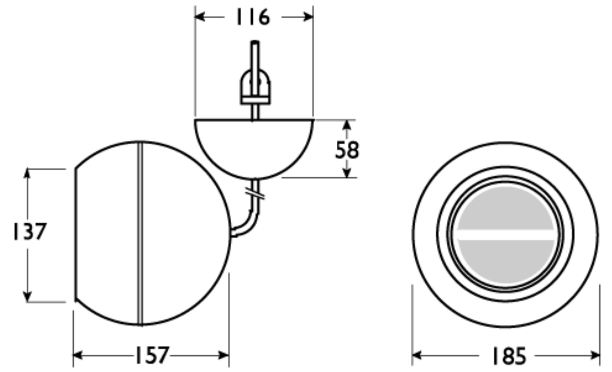
Certifications and approvals

Water protected	acc. to EN 60529, IP 63

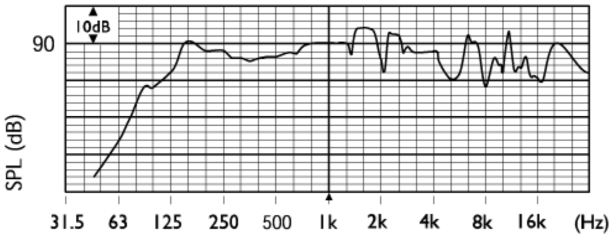
Region	**Certification**
Europe	CE

Installation/configuration notes

All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



Dimensions (in mm)



Frequency response

Parts included

Quantity	Components
1	LBC 3095/15
1	Cable clamp
1	Ceiling cover

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	99 dB / 89 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connection	5 m 4-wire cable

Mechanical

Dimensions (D x L)	185 x 157 mm (7.3 x 6.2 in)
Weight	2.5 kg (5.5 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3095/15 Pendant Sphere Loudspeaker
Pendant sphere,10 W, white ABS enclosure, wide opening angle, water and dust protected IP63, fixed 5 m connection cable, cable clamp, and ceiling cover included.
Order number **LBC3095/15**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

PLE-1MAxx0-EU Plena Mixer Amplifier

Features

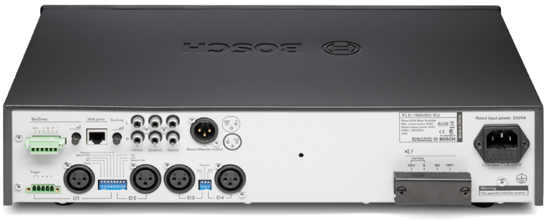
- 4 microphone/line inputs, plus 3 music source inputs
- 100 V and telephone input with priority & VOX
- Announcement only output, 3-wire volume override
- Voice-activated emergency override
- Wide range of power (30, 60 and 120 Watts)

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.
The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/configuration notes



Rear view

Parts included

Quantity	Components
1	PLE-1MAxx0-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC ±10%, 50/60 Hz (reduced power at lower mains or battery voltage)
Inrush current PLE-1MA030-EU	4.5 A
Inrush current PLE-1MA060-EU	5 A
Inrush current PLE-1MA120-EU	10 A
Power consumption	
PLE-1MA030-EU	100 VA
PLE-1MA060-EU	200 VA
PLE-1MA120-EU	400 VA
Performance	
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max -12/+12 dB (frequency is setting dependent)
Treble Control	Max -12/+12 dB (frequency is setting dependent)
RJ-45 input	1 x
Wall panel input	For PLE-WP3S2Z
Mic/Line input	4 x
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-4 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Headroom	>17 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Music input	3 x
Connector	Cinch, stereo converted to mono

Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	1 x
Connector	7-pin Euro style pluggable screw connector
Sensitivity Tel	1 V maximum
Sensitivity 100V	100 V maximum
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	threshold 50 mV; attack time 150 ms; release time 2 s

Master/music output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Loudspeaker output 100 V	
Connector	Euro style pluggable screw terminal, floating
Max / rated PLE-1MA030	45 W / 30 W
Max / rated PLE-1MA060	90 W / 60 W
Max / rated PLE-1MA120	180 W / 120 W

Loudspeaker output 8 ohm	
Connector	Euro style pluggable screw terminal, floating
PLE-1MA030-EU	16 V (30 W)
PLE-1MA060-EU	22 V (60 W)
PLE-1MA120-EU	31 V (120 W)

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	
PLE-1MA030-EU	Approx. 5 kg
PLE-1MA060-EU	Approx. 8.5 kg
PLE-1MA120-EU	Approx. 10.5 kg

Environmental

Operating temperature	-10 °C to +45 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%
Acoustic noise level of fan (PLE-1MA120-EU)	<33 dB SPL @ 1 m

Ordering information

PLE-1MA030-EU Plena Mixer Amplifier
Mixer amplifier, 30 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA030-EU**

PLE-1MA060-EU Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA060-EU**

PLE-1MA120-EU Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA120-EU**

PLE-1MExx0-xx Plena Mixer Amplifier

Features

- 4 microphone / line inputs, plus music source input
- Announcement only output, 3-wire volume override
- Wide range of output power (60, 120 and 240 Watts)
- 2-tone chime

These Plena Economy mixer amplifiers are professional public address units with modern state-of-the-art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio. Offering the essentials of public address in an affordable package.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Parts included

Quantity	Components
1	PLE-1MExx0-xx Plena Mixer Amplifier
1	Power cord
1	Manual
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage -EU versions	230 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -CN versions	220 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -US versions	120 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Inrush current PLE-1ME060-EU or -CN	5 A
Inrush current PLE-1ME120-EU or -CN	10 A
Inrush current PLE-1ME240-EU or -CN	12 A
Inrush current PLE-1ME060-US	10 A
Inrush current PLE-1ME120-US	20 A
Inrush current PLE-1ME240-US	24 A

Power consumption	
PLE-1ME060-xx	200 VA
PLE-1ME120-xx	400 VA
PLE-1ME240-xx	800 VA

Performance	
Frequency response (Line)	60 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Frequency response (Mic.)	70 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max. ± 8 dB
Treble Control	Max. ± 8 dB

Mic./Line input	4 x
Input 1 (push-to-talk contact with priority)	5-pin Euro style, balanced, phantom
Input 2	3-pin Euro style, balanced, phantom
Input 3 and 4	TRS Jack (1/4, 6.3mm) balanced
Sensitivity	1 mV (mic.); 300 mV (line)
Impedance	>1 kohm (mic.); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic.); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic.)	>40 dB (50 Hz to 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic.)

Music input	
Connector	Cinch, stereo converted to mono
Sensitivity	200 mV
Impedance	22 kohm

S/N (flat at max volume)	>75 dB
S/N (flat at min volume/muted)	>80 dB
Headroom	>25 dB

Loudspeaker output	
Connector	Screw terminal, floating
Max / rated PLE-1ME060-xx	90 W / 60 W
Max / rated PLE-1ME120-xx	180 W / 120 W
Max / rated PLE-1ME240-xx	360 W / 240 W

Loudspeaker output 4 ohm	
Connector	Screw terminal, floating
PLE-1ME060-xx	15.5 V (60 W)
PLE-1ME120-xx	22 V (120 W)
PLE-1ME240-xx	31 V (240 W)

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	
PLE-1ME060-xx	Approx. 6.5 kg
PLE-1ME120-xx	Approx. 8.9 kg
PLE-1ME240-xx	Approx. 10.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan (PLE-1ME240-xx)	<48 dB SPL @ 1 m

Ordering information

PLE-1ME060-EU Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME060-EU**

PLE-1ME120-EU Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME120-EU**

PLE-1ME240-EU Plena Mixer Amplifier
Mixer amplifier, 240 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME240-EU**

PLE-1ME060-US Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME060-US**

PLE-1ME120-US Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME120-US**

PLE-1ME240-US Plena Mixer Amplifier
Mixer amplifier, 240 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME240-US**

PLE-1CS Plena All-Call Call Station

Plena
BOSCH

Features

- PTT-key for calls for activation
- Momentary or toggle
- Green LED, indicating microphone active
- Stable metal base design with fixed 2 m cable and lockable Euro style connector
- Phantom powered by amplifier

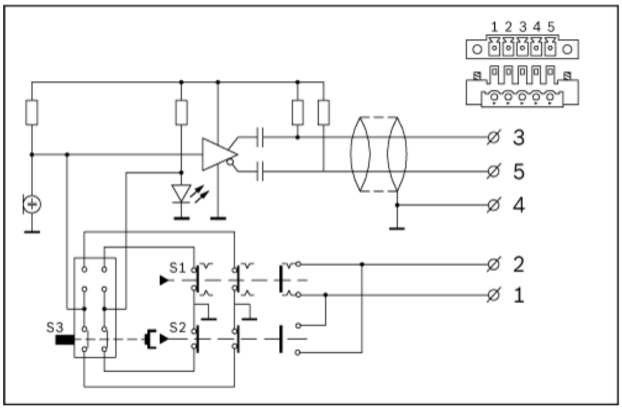
The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	**Certification**
Europe	CE

Installation/configuration notes



Circuit diagram

Parts included

Quantity	Component
1	PLE-1CS PLENA All Call Call Station

Technical specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA

Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic.	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLE-1CS Plena All-Call Call Station
All-zone call station with 2 m cable and lockable Euro style connector.
Order number **PLE-1CS**

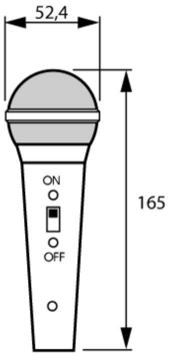
LBC 2900/xx Unidirectional Handheld Microphones

Features

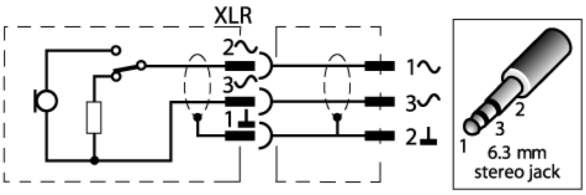
- Unidirectional dynamic microphone
- Handheld or stand-mounted use with clip (supplied)
- Rugged construction
- Modern non-reflective dark grey finish

With this unidirectional microphone, Bosch provides impressive audio performance at an economical price. The LBC 2900/xx is based on a dynamic transducer element that is designed for high speech intelligibility. Its rugged enclosure is both stylish and easy to use in a wide range of public and sound reinforcement applications.

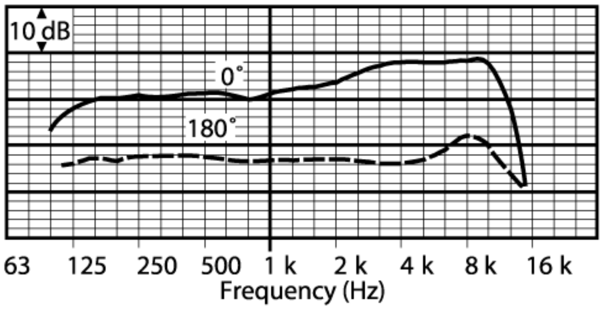
Installation/configuration notes



Dimensions in mm



Circuit diagram



Frequency response

Parts included

Quantity	Component
1	LBC 2900/15 with 7 m (23 ft)shielded black cable terminated with a 6.3 mm (1/4”) stereo jack plug or LBC 2900/20 with a 7 m (23 ft) shielded black cable terminated with an XLR male plug
1	Stand bracket with push-on clip for use with microphone stand, and screw-thread adapter for 3/8", 1/2", or 5/8“ Whitworth-threaded stand

Technical specifications

Electrical*

Type	Handheld
Polar pattern	Unidirectional
Frequency range	80 Hz to 12 kHz
Sensitivity	1.7 mV/Pa ±3 dB
Rated output impedance	600 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (D x L)	52.4 x 165 mm (2.06 x 6.49 in)
Weight	270 g (9.5 oz)
Color	Dark gray
Switch	On/off slide
Cable length	7 m (23 ft)
Connector (/15)	6.3 mm (1/4") stereo jack
Connector (/20)	3-pin XLR

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 2900/15 Unidirectional Handheld Microphone
Dynamic handheld microphone, unidirectional, non-reflective dark gray finish, On/off switch. Supplied with 7 m (23 ft) cable, XLR female / 6.3 mm (1/4”) stereo jack plug connection cable, quick-release microphone clamp, and storage box.
Order number **LBC2900/15**

LBC 2900/20 Unidirectional Handheld Microphone
Dynamic handheld microphone, unidirectional, non-reflective dark gray finish, On/off switch. Supplied with 7 m (23 ft) cable, XLR male/ female connection cable, quick-release microphone clamp, and storage box.
Order number **LBC2900/20**

Accessories

LBC 1215/01 Microphone Clamp
Universal spring-loaded microphone holder, friction angular adjustment, matt black, screws onto a 3/8", 1/2", or 5/8" Whitworth thread, holds microphone stem with 19 to 32 mm diameter.
Order number **LBC1215/01**

LBC 1221/01 Floor Stand
Microphone floor stand, three folding legs, matt black, adjustable length from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp, threaded connector 3/8" Whitworth.
Order number **LBC1221/01**

LBC 1227/01 Table Stand
Table microphone stand, matt black, heavy round cast-iron base, 130 mm (5.12 in) diameter with shock-absorbing rubber insert under surface, with 3/8” Whitworth stud.
Order number **LBC1227/01**

LBC 1226/01 Adjustable Boom
Microphone boom arm, matt black, maximum reach 670 mm (2.12 ft), length 840 mm (2.76 ft), fits onto 3/8' Whitworth threaded microphone stands.
Order number **LBC1226/01**

LBB 1949/00 Gooseneck Condenser Microphone

Features

- Unidirectional condenser microphone
- Flexible stem
- Phantom powered by amplifier
- On/off sliding switch with priority contact
- Supplied with fixed 2 m (78 in) cable and lockable DIN connector

The gooseneck microphone is a stylish high quality unidirectional condenser microphone, mainly intended for public address applications.

Functions

The flexible stem base has a screw fitting, and the microphone comes with a multi-thread adaptor (3/8", 1/2", and 5/8") for mounting onto floor-stands, lecterns, panels or desktops. The microphone runs off the phantom power supply from the amplifier to which it is connected.

The on-off sliding switch, not only switches on the microphone, but also provides priority contacts for remote control switching purposes. If the priority contacts are not required, the microphone can be connected to amplifiers with 3-pin XLR-inputs, using the DIN to XLR adapter.

Certifications and approvals

Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Parts included

Quantity	Component
1	LBB 1949/00 Gooseneck Condenser Microphone
1	DIN to XLR adapter

Technical specifications

Electrical*

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA
Performance*	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Equivalent input noise level	28 dBA SPL (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output Impedance	< 200 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (D x L)	30 x 500 mm (19.69 x 1.18 in)
Weight	Approx. 300 g (10.5 oz)
Color	Dark gray
Cable length	2 m (78 in)
Connector	5-pin DIN 180° (lockable)

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 1949/00 Gooseneck Condenser Microphone
Condenser gooseneck microphone, unidirectional, nonreflective dark gray finish, flexible stem, On/off switch with priority contact, fixed 2 m (78 in) cable with 5 pin DIN 180 degrees (lockable) connector. DIN to XLR adapter standard supplied.
Order number **LBB1949/00**

Accessories

LBC 1208/40 Microphone Cable
Microphone connection/extension cable, 3-pin XLR, 10 m (32.8 ft).
Order number **LBC1208/40**

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone

Plena
BOSCH

Features

- Stylish tabletop unidirectional condenser microphone on a flexible stem
- Phantom powered by amplifier
- Momentary or toggle PTT-key for calls with priority contact
- Green LED, indicating microphone active
- Stable metal base design with fixed 2 m cable and lockable DIN connector

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, mainly intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin DIN connector for the balanced signal and the priority contacts. If the priority contacts are not required, the microphone can be connected to amplifiers with 3-pin XLR-inputs, using the DIN to XLR adapter.

A green LED indicates when the microphone is active.

Controls and indicators

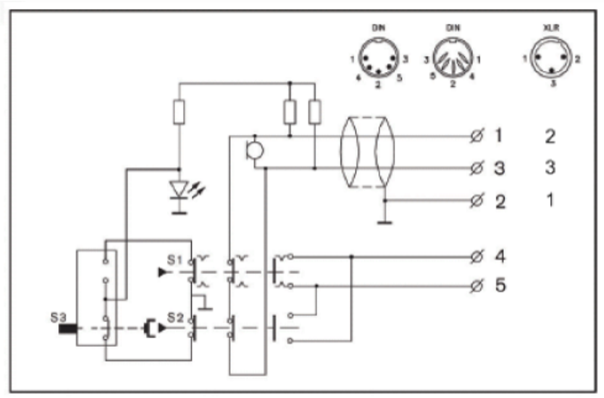
- PTT-key
- PTT status LED

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes



Circuit diagram

Parts included

Quantity	Component
1	LBB 1950/10 PLENA Tabletop Unidirectional Condenser Microphone
1	DIN to XLR adapter

Technical specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA
Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone
Tabletop unidirectional condenser microphone on a flexible stem.
Order number **LBB1950/10**

MW1-RX-Fx Wireless Microphone Receivers

BOSCH
808.000

Features

- 193 automatically selectable UHF channels
- PLL synthesized technology
- Pilot tone & noise squelch
- True diversity for stable reception
- Table top and 19” rack mountable

The MW1-RX-F1 and MW1-RX-F2 wireless microphone receiver is part of the Bosch wireless microphone system. The complete system consists of a microphone receiver, a wireless belt-pack transmitter with clip-on lavalier microphone (MW1-LTX-F1 or MW1-LTX-F2) or a wireless handheld transmitter (MW1-HTX-F1 or MW1-HTX-F2). The products are sold separately to offer optimal flexibility in the composition of a system.

Certifications and approvals

CE Marking	acc. to R & TTE directive 1999/5/EC
EMC	acc. to ETSI EN 301489-1 acc. to ETSI EN 301489-9 acc. to ETSI EN 300422-2

Region	Certification
Europe	CE

Parts included

Quantity	Components
1	MW1-RX-F1 Wireless Microphone Receiver or MW1-RX-F2 Wireless Microphone Receiver
1	User manual
1	1.5 m 3-pin XLR male/female cable
1	AC/DC adapter with power cord

Technical specifications

Electrical

Power source	12 V to 18 V, 500 mA
Performance	
Modulation	FM
Frequency selection	PLL synthesized control
Frequency range	MW1-RX-F1: 790 to 814 MHz MW1-RX-F2: 852 to 876 MHz
Channels	193 channels in steps of 125 kHz
Frequency stability	±0.005%
Technology	True diversity system
S/N ratio	>100 dB
Antenna	2 x
Connector	BNC
HF impedance	50 ohm
Output	2 x
Connector	XLR-3 male, balanced
Output level	-12 dBV (max)
Output impedance	600 ohm
Connector	6.3 mm jack, unbalanced
Output level	0 dBV (max)
Output impedance	2.2 kohm
Squelch	Pilot tone and noise mute

Mechanical

Dimensions (H x W x D)	40 x 211 x 152 mm
Color	Charcoal
Weight	Approx. 1 kg
Antenna length	50 mm (½ λ)

Environmental

Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

Ordering information

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

MW1-RMB Dual Rack-mounting Kit
Dual-rack mounting kit for mounting two receivers side-by-side in a one-unit high rack space. Supplied with two BNC/BNC cables (600 mm) and a front panel with mounting holes for 2 BNC connectors for mounting two antennas.
Order number **MW1-RMB**

MW1-LTX-Fx Wireless Belt-pack Transmitters

Features

- 193 selectable UHF channels
- PLL synthesized technology
- LCD with battery status and frequency indication
- Lock function
- Approximately 15 hours operation on alkaline batteries

The MW1-LTX-F1 and MW1-LTX-F2 wireless belt-pack transmitters are part of the Bosch wireless microphone system. The complete system consists of a microphone receiver (MW1-RX-F1 or MW1-RX-F2), a wireless belt-pack transmitter with clip-on lavalier microphone (MW1-LTX-F1 or MW1-LTX-F2), a wireless handheld microphone (MW1-HTX-F1 or MW1-HTX-F2). The products are sold separately to offer optimal flexibility in the composition of the system.

Certifications and approvals

CE Marking	acc. to R & TTE directive 1999/5/EC
EMC	acc. to ETSI EN 301489-1 acc. to ETSI EN 301489-9 acc. to ETSI EN 300422-2

Region	**Certification**
Europe	CE

Parts included

Quantity	Components
1	MW1-LTX-F1 Wireless Belt-pack Transmitter or MW1-LTX-F2 Wireless Belt-pack Transmitter
1	Protective case
2	LR5/AA batteries
1	MW1-LMC Lavalier Microphone
1	Windscreen
1	Clip

Technical specifications

Electrical

Belt-pack	
Batteries	2 x LR6/AA/UM3 1.5 V
Battery life time	Approx. 15 hr
Modulation	FM frequency modulation
Frequency selection	PLL synthesized control
Frequency range	MW1-LTX-F1: 790 to 814 MHz MW1-LTX-F2: 852 to 876 MHz
Channels	193 channels in steps of 125 kHz
Frequency stability	±0.005%
Frequency deviation	±48 kHz
S/N ratio	>102 dB
RF output	10 mW
Spurious rejection	>60 dBc
Dynamic range	>110 dB
Response	50 Hz to 15 kHz
Squelch	Pilot tone & noise mute

Lavalier microphone	
Connector	Mini XLR (tiny QG)
Frequency range	100 Hz to 12 kHz
Polar pattern	Cardioid
Sensitivity (at 1 kHz)	-70 dB ± 3 dB
Impedance	2.2 kohm ±30%
Max SPL for 1% THD	130 dB(SPL)

Mechanical

Belt-pack	
Dimensions (H x W x D)	105 x 78 x 34 mm without antenna
Color	Charcoal
Weight	176 g
Antenna	Flexible

Lavalier microphone	
Dimensions (L x D)	30 x 16 mm
Color	Charcoal

Weight	20 g
Cable length	1 m

Environmental

Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

Ordering information

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

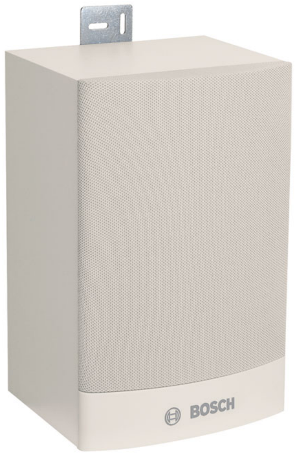
MW1-HMC Head-worn Microphone
Head-worn microphone with miniature condenser microphone with omni-directional pick-up pattern, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-HMC**

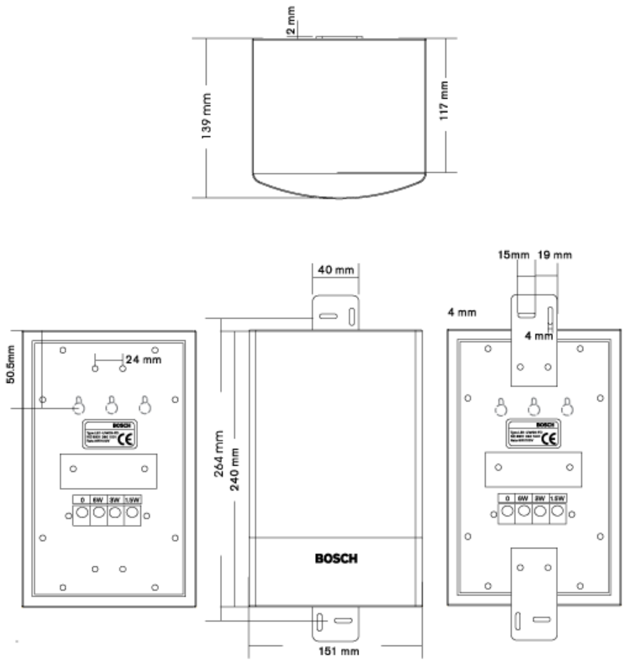
MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

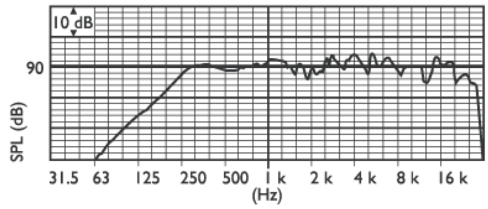
MW1-LMC Lavelier Microphone
Lavalier clip-on microphone with windscreen, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-LMC**

LB1-UW06-Fx Cabinet Loudspeakers





Dimensions in mm



Frequency response

Features

- Good speech intelligibility and background music reproduction
- Finished in white or black
- MDF construction
- Mounting brackets for wall or ceiling mounting
- Complies with international installation and safety regulations

The LB1-UW06-Fx is a 6 W, general-purpose, cost-effective loudspeaker for indoor use. Two brackets, fixed to the rear panel, are provided for quick and easy mounting on a wall or ceiling. The cabinet is available in the colors black or white.

Certifications and approvals

Safety	acc. to EN 60065

Installation/configuration notes

Two mounting brackets, fixed to the rear panel provide easy and quick wall mounting or ceiling mounting. If these are not desired, they can be removed, and the unit can still be wall mounted using the three keyholes in the rear panel.
A convenient, easy-to-use, 4-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 volt matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 139 mm (9.4 x 5.9 x 5.5 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-UW06-FD Unidirectional Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, supplied with mounting brackets for wall or ceiling mounting.
Order number **LB1-UW06-FD**

LB1-UW06-FL Unidirectional Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, supplied with mounting brackets for wall or ceiling mounting.
Order number **LB1-UW06-FL**

LB1-UW06x-x Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Available in black or white
- MDF construction
- With or without integral volume control
- Complies with international installation and safety regulations

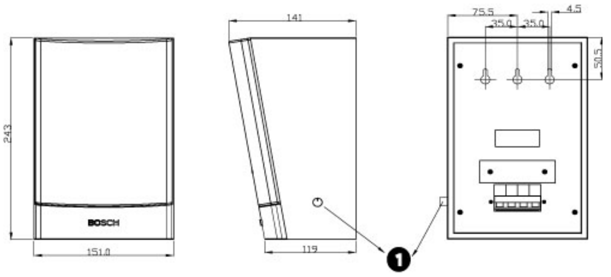
The LB1-UW06x-x is a 6 W, general-purpose, cost-effective loudspeaker for indoor use, with or without volume control. Keyholes at the rear are provided for quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Certifications and approvals

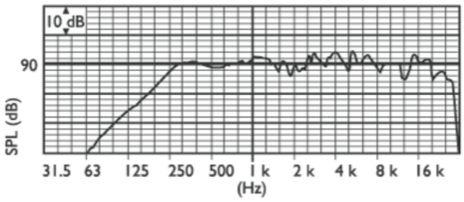
Safety	acc. to EN 60065

Installation/configuration notes

Three keyholes in the rear panel provide easy and quick wall mounting.
A convenient, easy-to-use, 4-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions LB1-UW06-x in mm showing volume control (1)



Frequency response

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range	180 Hz to 20 kHz (-10 dB)
Opening angle horizontal vertical	1 kHz / 4 kHz (-6 dB) 165° / 95° 158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	243 x 151 x 141/119 mm (9.5 x 5.9 x 5.6/4.7 in)
Weight	0.9 kg (2 lb)
Color cabinet / cloth (D) cabinet / cloth (L)	Black (D) or white (L) Matches RAL 9004 / RAL 9004 Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55°C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LB1-UW06-D Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW06-D**

LB1-UW06V-D Cabinet Loudspeaker with Volume Control
Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW06V-D**

LB1-UW06-L Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW06-L**

LB1-UW06V-L Cabinet Loudspeaker with Volume Control
Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW06V-L**

LB1-CW06-x Corner Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Special shape for mounting in corners
- Available in black or white
- MDF construction
- Compliancy with international installation and safety regulation

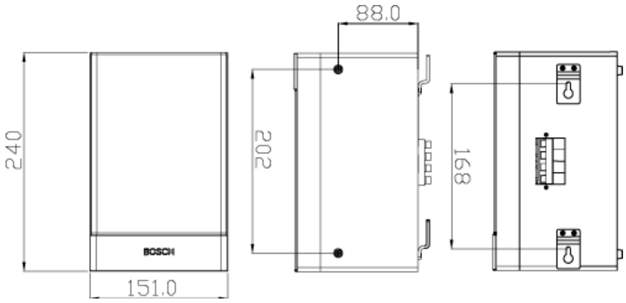
The LB1-CW06-x is a 6 W, general-purpose cost,-effective loudspeaker for indoor use. Two brackets with keyholes, fixed on one side provide quick and easy mounting in corners between two walls, or between a wall and ceiling. The cabinet is available in black or white.

Certifications and approvals

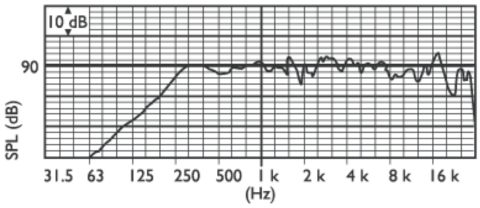
Safety	acc. to EN 60065

Installation/configuration notes

Two keyhole brackets at one side of the cabinet are provided for easy and quick wall mounting. The other side of the cabinet is provided with two rubber feet for absorbing unwanted vibrations and secure mounting.
A convenient easy-to-use, 4-pole push-in terminal block is present on the side for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power, or quarter-power radiation (in 3 dB steps).



Dimensions in mm



Frequency response

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	150° / 75°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 138 mm (9.5 x 5.9 x 5.6 in)
Weight	0.8 kg (1.8 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-CW06-D Corner Cabinet Loudspeaker
Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, special shape for mounting in corners, supplied with two brackets with keyholes.
Order number **LB1-CW06-D**

LB1-CW06-L Corner Cabinet Loudspeaker
Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, special shape for mounting in corners, supplied with two brackets with keyholes.
Order number **LB1-CW06-L**

LB1-UW12-x Cabinet Loudspeakers

Features

- ▶ Good speech intelligibility and background music reproduction
- ▶ Available in black or white
- ▶ MDF construction
- ▶ Complies with international installation and safety regulations

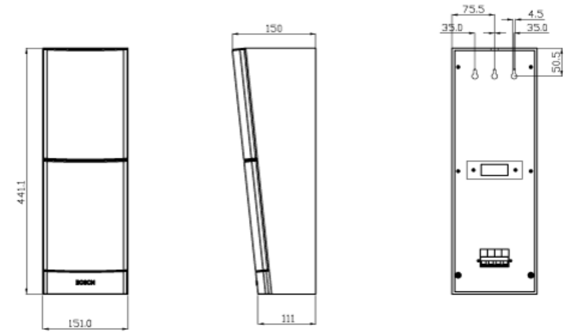
The LB1-UW12-x is a 12 W, general-purpose, cost-effective loudspeaker for indoor use. Keyholes at the rear provide quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Certifications and approvals

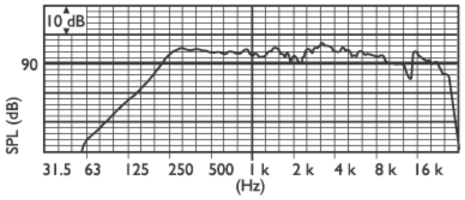
Safety	acc. to EN 60065

Installation/configuration notes

Three keyholes in the rear panel provide easy and quick wall mounting. A convenient easy-to-use, 4-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions in mm



Frequency response

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	104 / 93 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	195° / 95°
vertical	69° / 17°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	441 x 151 x 150/111 mm (17.4 x 5.9 x 5.9/4.4 in)
Weight	2.5 kg (5.5 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-UW12-D Cabinet Loudspeaker
Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW12-D**

LB1-UW12-L Cabinet Loudspeaker
Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW12-L**

LB1-BW12-x Bidirectional Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Wedge shaped design
- Available in black or white
- MDF construction
- Complies with international installation and safety regulations

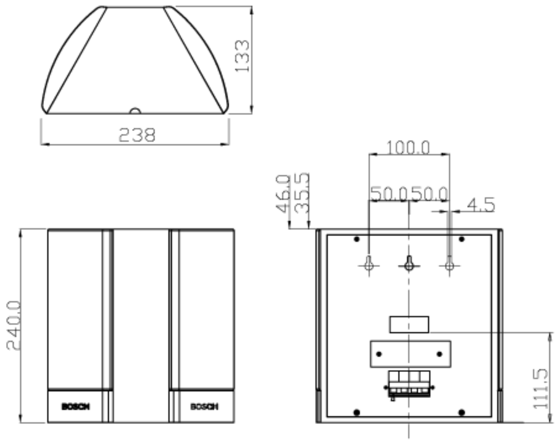
The LB1-BW12-x is a 12 W, cost-effective, bidirectional loudspeaker for indoor use. The baffle design creates a wide opening angle, making this loudspeaker very suitable for use in long corridors. Keyholes at the rear provide quick and easy wall mounting. The cabinet is available in black or white.

Certifications and approvals

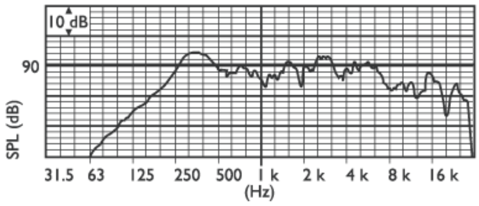
Safety	acc. to EN 60065

Installation/configuration notes

Three keyholes in the rear panel provide easy and quick wall mounting. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions in mm



Frequency response

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	97 / 86 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	270° / 165°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 238 x 133 mm (9.4 x 9.3 x 5.24 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

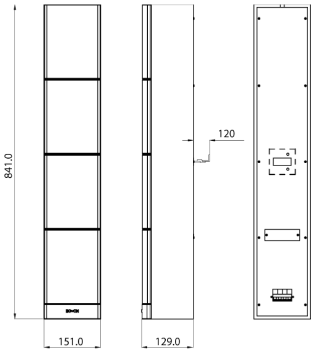
Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

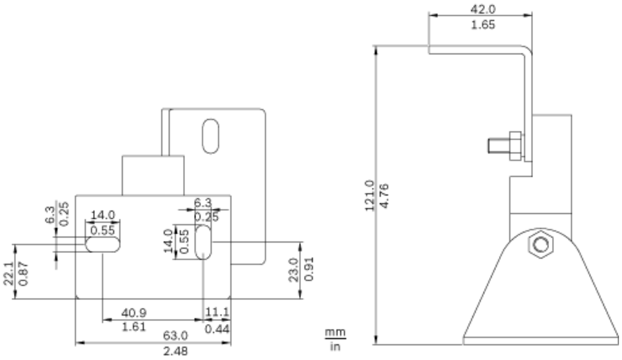
LB1-BW12-D Bi-Directional Cabinet Loudspeaker
Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-BW12-D**

LB1-BW12-L Bi-Directional Cabinet Loudspeaker
Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-BW12-L**

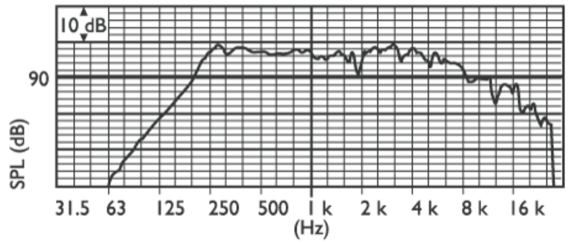
LA1-UW24-x Column Loudspeakers



Dimensions in mm



Bracket dimensions



Frequency response

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- High sensitivity
- Swivel wall-mounting bracket supplied as standard
- Available in black or white

The LA1-UW24-x is a 24 W, general-purpose, cost-effective column loudspeaker for indoor use where beaming is desirable, such as places of worship, conference venues, meeting rooms, and canteens. A swivel wall-mounting bracket is supplied as standard. The column loudspeaker is available in black and white.

Certifications and approvals

Safety	acc. to EN 60065

Installation/configuration notes

The column loudspeakers can be wall mounted using the supplied swivel bracket, allowing accurate positioning. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Parts included

Quantity	Component
1	LA1-UW24-x Column Loudspeaker
1	Swivel wall mounting bracket

Technical specifications

Electrical*

Maximum power	36 W
Rated power	24 / 12 / 6 W
Sound pressure level at 24 W / 1 W (1 kHz, 1 m)	110 dB / 96 dB (SPL)
Effective frequency range (-10 dB)	165 Hz to 16 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	190° / 88°
vertical	30° / 8°

Rated input voltage	100 V
Rated impedance	417 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	841x 151 x 129 mm (33.1 x 5.9 x 5.1 in)
Weight	5.5 kg (12.1 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LA1-UW24-D Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall-mounting bracket.
Order number **LA1-UW24-D**

LA1-UW24-L Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.
Order number **LA1-UW24-L**

LA1-UW36-x Column Loudspeakers

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- High sensitivity
- Swivel wall mounting bracket supplied as standard
- Available in black or white

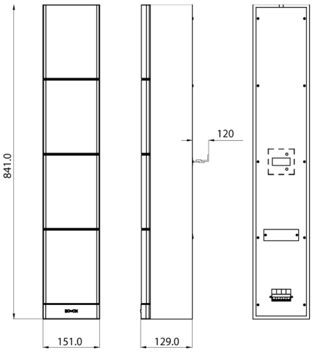
The LA1-UW36-x is a 36 W, general-purpose, cost-effective column loudspeaker for indoor use where beaming is desirable, such as places of worship, congress venues, meeting rooms and canteens. A swivel wall mounting bracket is supplied as standard. The column loudspeaker is available in black and white.

Certifications and approvals

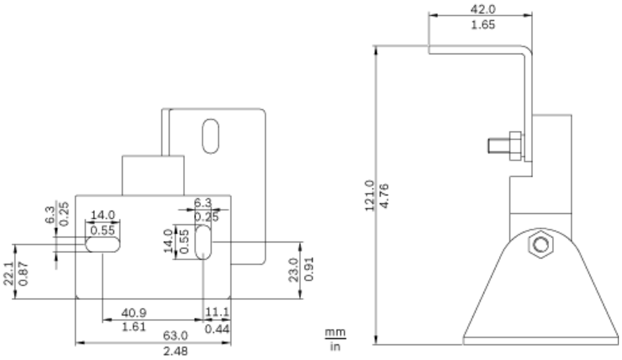
Safety	acc. to EN 60065

Installation/configuration notes

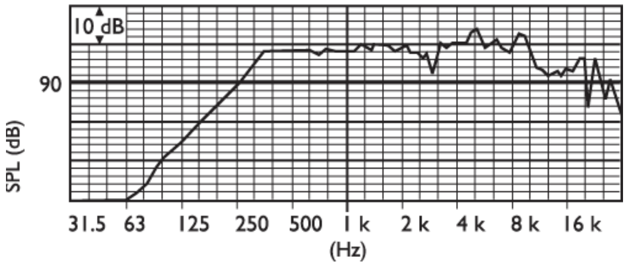
The column loudspeakers can be wall mounted using the supplied swivel bracket, allowing accurate positioning. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions in mm



Bracket dimensions



Frequency response

Parts included

Quantity	Component
1	LA1-UW36-x Column Loudspeaker
1	Swivel wall mounting bracket

Technical specifications

Electrical*

Maximum power	54 W
Rated power	36 / 18 / 9 W
Sound pressure level at 36 W / 1 W (1 kHz, 1 m)	114 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 19 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	190° / 88°
vertical	30° / 8°
Rated input voltage	100 V

Rated impedance	278 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	841x 151 x 129 mm (33.1 x 5.9 x 5.1 in)
Weight	6 kg (13.2 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 °C to +55°C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LA1-UW36-D Column Loudspeaker
Column loudspeaker 36 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall mounting bracket.
Order number **LA1-UW36-D**

LA1-UW36-L Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.
Order number **LA1-UW36-L**

LBC 3950/01 Ceiling Loudspeaker

Features

- Compact yet powerful
- Very wide opening angle
- Modern unobtrusive styling
- Installation friendly
- Splash-waterproof

The LBC 3950/01 is a compact, 6 W loudspeaker with a circular plastic grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

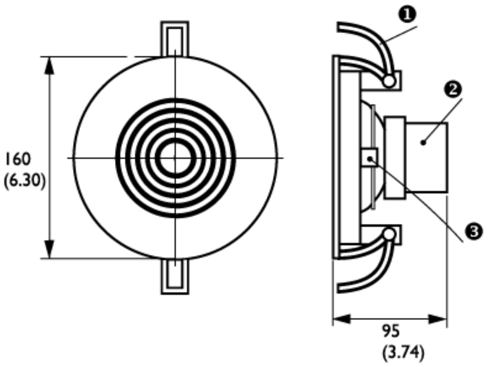
Certifications and approvals

Safety	acc. to EN 60065
Water protected	acc. to EN 60529, IPx4

Region	Certification	
Europe	CE	Declaration of Conformity

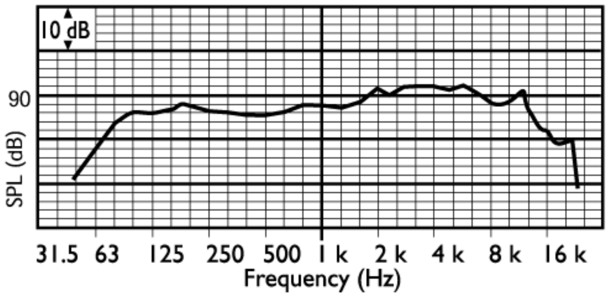
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.



01	Clamp
02	Matching transformer
03	Terminal block

Dimensions in mm (in)



Frequency response

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 90°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 in)
Maximum depth	95 mm (3.74 in)

Ceiling thickness	9 to 25 mm (0.35 to 0.98 in)
Mounting cut-out	145 mm (5.71 in)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3950/01 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular ABS grille, integral clips for easy mounting, push terminal block, white RAL 9010.
Order number **LBC3950/01**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3951/11 Ceiling Loudspeaker

Features

- Compact yet powerful
- Very wide opening angle
- Modern unobtrusive styling
- Installation friendly
- Splash - waterproof

The LBC 3951/11 is a compact, 6 W loudspeaker with a perforated metal grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

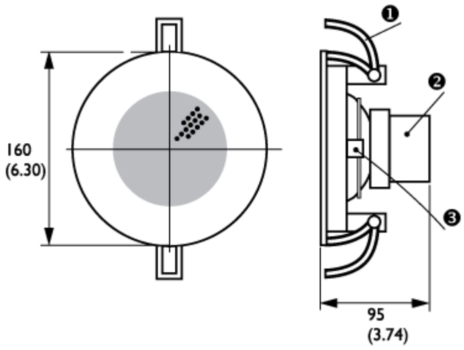
Certifications and approvals

Safety	acc. to EN 60065
Water protected	acc. to EN 60529, IPx4

Region	Certification
Europe	CE

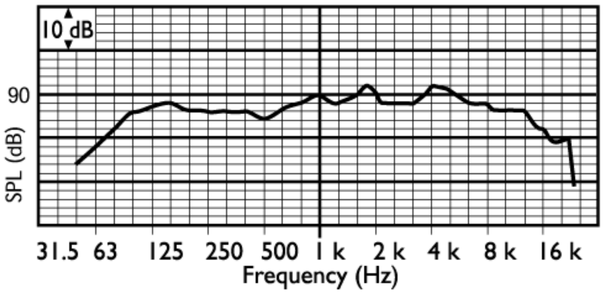
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.



01	Clamp
02	Matching transformer
03	Terminal block

Dimensions in mm (inch)



Frequency response

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 80°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 inch)
Maximum depth	95 mm (3.74 inch)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 inch)

Mounting cut-out	145 mm (5.71 inch)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3951/11 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille with an ABS surround, integral clips for easy mounting, push terminal block, white RAL 9010.
Order number **LBC3951/11**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LHM 0606/xx Ceiling Loudspeaker

Features

- Suitable for speech and music reproduction
- Flush-mounting in ceiling cavity
- Easy to install
- Simple power setting
- Unobtrusive in virtually all interiors

The LHM 0606/xx is a general purpose, 6 W, cost-effective ceiling loudspeaker. The /00 version is screw mounted and the /10 version is clamp mounted into the ceiling. An optional fire dome LBC 3080/01 is available.

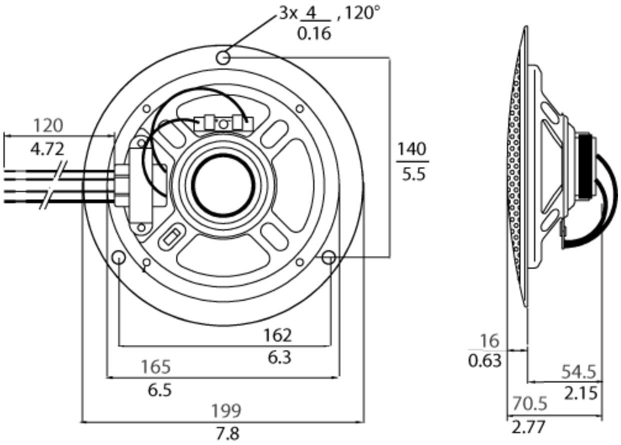
Certifications and approvals

Safety	acc. to EN 60065

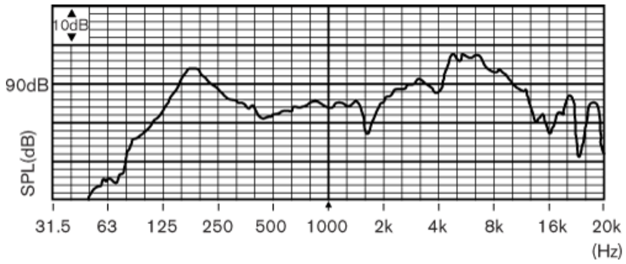
Installation/configuration notes

Mounting
The assembly is simply and quickly installed into a hole in the ceiling cavity. The /00 version is secured with the three white screws (supplied). The /10 version is secured by two integral spring-loaded ceiling locking clamps. A circular template for marking a 165 mm diameter hole is included with the loudspeaker.
Three wires on the matching transformer (primary) provide for selection of nominal full-power, half-power or quarter-power radiation.

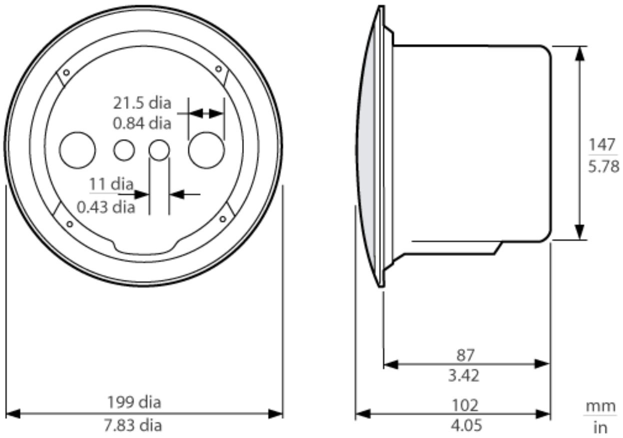
Fire dome
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the caving via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3080/01). This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws, supplied as standard.
There are four knock-out holes; two (2) for rubber grommets (supplied) and two (2) for cable glands. (PG13).



LHM 0606/x0 Dimensions in mm / inch



Frequency response



LHM 0606/xx + LBC 3080/01 Fire dome assembly dimensions in mm

Technical specifications

Electrical

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	94 dB / 86 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	106 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	80 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	175° / 55°
Rated voltage	100 V

Rated impedance	1667 ohm
Connection	Flying leads

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	70.5 mm (2.8 in)
Mounting cut-out	165 + 5 mm (6.5 + 0.20 in)
Speaker diameter	152.4 mm (6 in)
Weight	620 g (1.37 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LHM 0606/00 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 3 (white) screws (supplied), white RAL 9010.
Order number **LHM0606/00**

LHM 0606/10 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 2 spring clamps, white RAL 9010.
Order number **LHM0606/10**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3080/01 Fire Dome
Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.
Order number **LBC 3080/01**

LB2-UCxx-x Premium-sound Cabinet Loudspeaker Range

Features

- High-fidelity music and speech reproduction
- Selectable 8 ohm, 70 V and 100 V inputs
- Compact yet robust ABS enclosure
- Supplied with adjustable mounting bracket
- Complies with international installation and safety regulations

The LB2-UCxx-xPremium-sound cabinet loudspeakers are intended for clear reproduction of speech, foreground and background music to be used in general indoor and outdoor applications. The Premium-sound cabinet loudspeaker range consists of a 15 W and 30 W model, available in a light or dark color. The loudspeakers have selectable 8 ohm, 70 V and 100 V inputs. Typical applications are: theme bars, music restaurants, theme parks, retail outlets, audio visual, boardrooms and offices, exhibition areas, showrooms, fitness centre's and presentation environments.

Certifications and approvals

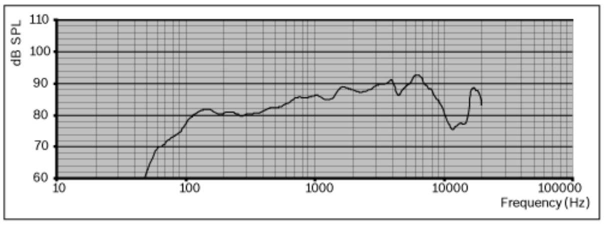
Safety	acc. to EN 60065
Water protection	acc. to EN 60529 IP x4
Self extinguishing	acc. to UL94 V 0

Installation/configuration notes

The cabinets include a built-in transformer that offers a selection of nominal full power, half power, quarter power or eight power radiation (i.e. in 3 dB steps) for 70 V, 100 V or 8 Ohm bypass.
Selection is done by a convenient switch on the rear enclosure.
A two meter long twin-core loudspeaker cable (in matching color with the cabinet) is connected to the loudspeaker. The core ends are stripped ready for use.

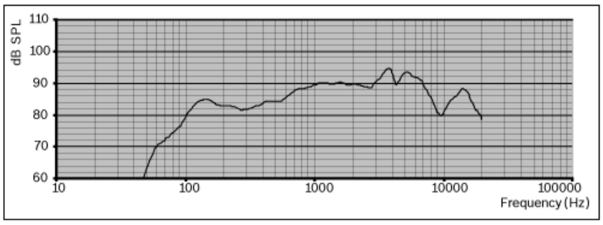
The cabinets can be mounted horizontally to allow the loudspeaker to be directed up or down, or vertically to allow left and right rotation by means of a steel U-shaped wall bracket (standard supplied).
The rotatable logo can be easily adjusted to match the mounting orientation.

LB2-UC15-D/L



Frequency response

LB2-UC30-D/L



Frequency response

Parts included

Quantity	Components
1	LB2-UCxx-x
1	Mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Product	LB2-UC15-(D/L)	LB2-UC30-(D/L)
Description	Premium-sound Cabinet Loudspeaker	Premium-sound Cabinet Loudspeaker
Maximum power	22.5 W	45 W
Rated power (PHC)	15 W	30 W
Power tapping	15 / 7.5 / 3.75 / 1.9 W	30 / 15 / 7.5 / 3.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	98/86 dB (SPL)	105/90 dB (SPL)
Effective frequency range (-10 dB)	95 Hz to 19.5 kHz	100 Hz to 18.5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	179° / 101° (hor.) 168° / 35° (ver.)	160° / 81° (hor.) 150° / 90° (ver.)
Rated input voltage	11/70/100 V	15.5/70/100 V
Rated impedance	8 / 326 / 667 ohm	8 / 163 / 333 ohm

Transducers	101.6 mm (4”) woofer, 13 mm (0.51 “) dome tweeter	127 mm (5”) woofer, 13 mm (0.51 “) dome tweeter
Connection	2 m (78.8 in.) two-wire cable	2 m (78.8 in.) two-wire cable

** Technical performance data acc. to IEC 60268-5*

Mechanical

Dimensions (H x W x D)	205 x 136 x 117 mm (8.07 x 5.35 x 4.60 in)	250 x 160 x 140 mm (9.84 x 6.30 x 5.51 in)
Weight	Approx. 1.9 kg (4.18 lb)	Approx. 2.4 kg (5.29 lb)
Color	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB2-UC15-D Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, charcoal RAL 7021.
Order number **LB2-UC15-D**

LB2-UC15-L Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, white RAL 9010.
Order number **LB2-UC15-L**

LB2-UC30-D Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, charcoal RAL 7021.
Order number **LB2-UC30-D**

LB2-UC30-L Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, white RAL 9010.
Order number **LB2-UC30-L**

LBC 34xx/12 Horn Loudspeakers

Features

- High efficiency drivers
- Up to 45 W (max. power)
- Wide opening angle
- Excellent speech reproduction
- Simple power setting

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

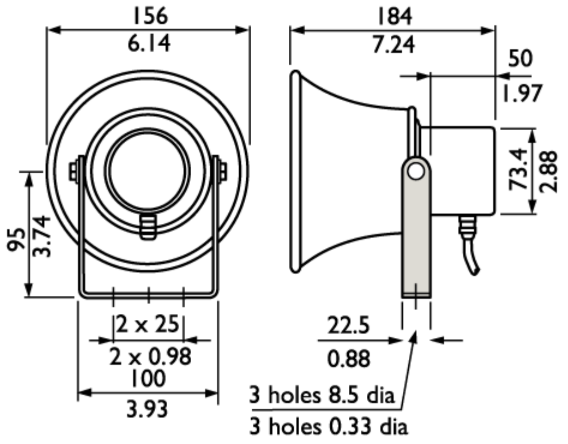
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0
Water and dust protection	acc. to EN 60529-IP65

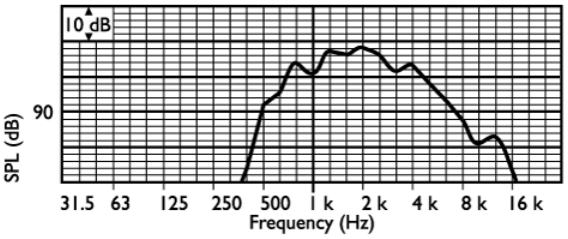
Region	**Certification**	
Europe	CE	Declaration of Conformity
	CE	

Installation/configuration notes

LBC 3481/12

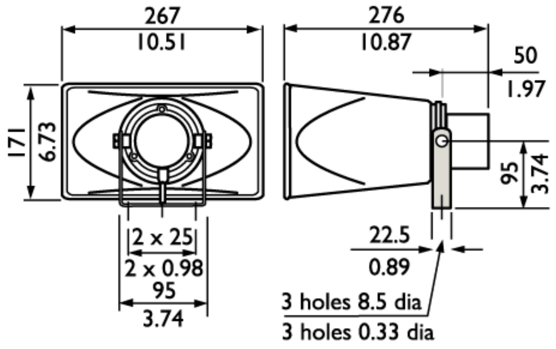

156
6.14
184
7.24
50
1.97
73.4
2.88
95
3.74
2 x 25
2 x 0.98
100
3.93
22.5
0.88
3 holes 8.5 dia
3 holes 0.33 dia

Dimensions in mm (in)

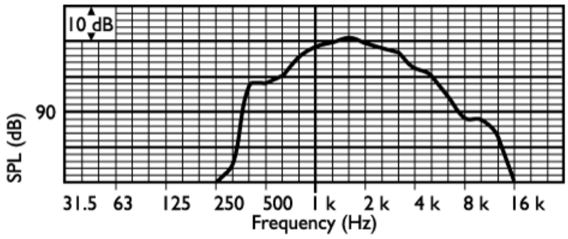


Frequency response

LBC 3491/12

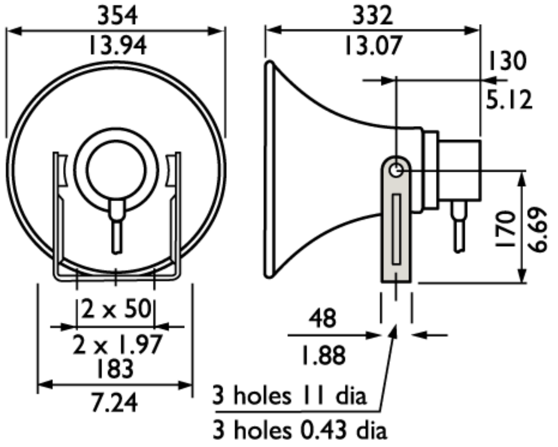

267
10.51
276
10.87
50
1.97
171
6.73
95
3.74
2 x 25
2 x 0.98
95
3.74
22.5
0.89
3 holes 8.5 dia
3 holes 0.33 dia

Dimensions in mm (in)

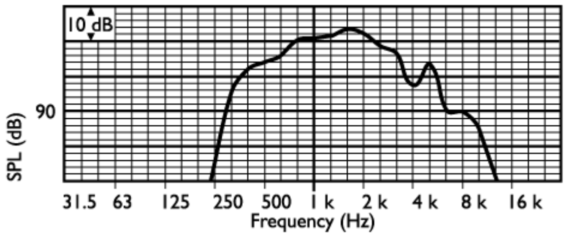


Frequency response

LBC 3492/12

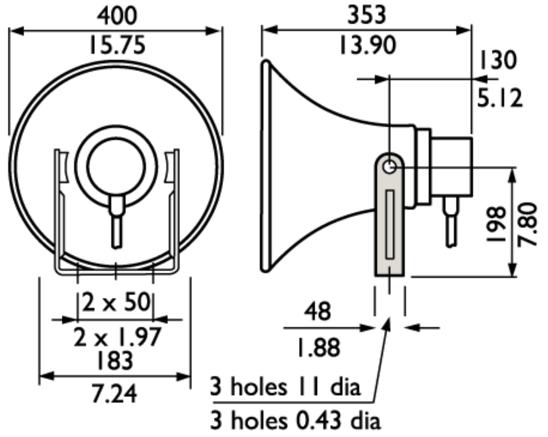

354
13.94
332
13.07
130
5.12
170
6.69
2 x 50
2 x 1.97
183
7.24
48
1.88
3 holes 11 dia
3 holes 0.43 dia

Dimensions in mm (in)

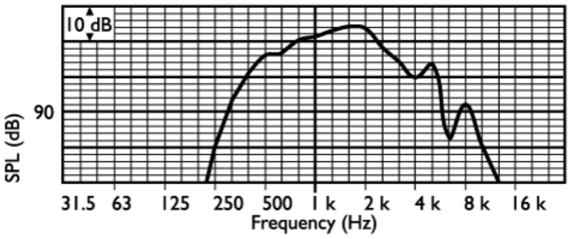


Frequency response

LBC 3493/12


400
15.75
353
13.90
130
5.12
198
7.80
2 x 50
2 x 1.97
183
7.24
48
1.88
3 holes 11 dia
3 holes 0.43 dia

Dimensions in mm (in)



Frequency response

Ordering information

LBC 3481/12 Horn Loudspeaker, Circular, 10 W
Horn loudspeaker 10 W, circular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3481/12**

LBC 3491/12 Horn Loudspeaker, Rectangular, 10 W
Horn loudspeaker 10 W, rectangular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3491/12**

LBC 3492/12 Horn Loudspeaker, Circular, 20 W
Horn loudspeaker 20 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3492/12**

LBC 3493/12 Horn Loudspeaker, Circular, 30 W
Horn loudspeaker 30 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3493/12**

LBC 14x0/x0 MK Volume Controls and LBC 1430/10 Program Selector

Features

- 12 W, 36 W and 100 W versions
- Available in power-save or failsafe versions
- Built-in 24 VDC override relay
- Continuous rotating system
- Suitable for 3-wire and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

Technical specifications

Electrical

LBC 1400/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1410/10 and /20	
Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1420/10 and /20	
Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1430/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off

Mechanical

LBC 1400/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	226 g
Color	White (RAL 9010)
LBC 1410/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	227 g
Color	White (RAL 9010)
LBC 1420/10 and /20	
Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)
LBC 1430/10	
Dimensions (W x H x D)	87 x 87 x 32.9 mm
Weight	125 g
Color	White (RAL 9010)
LM1-SMB-MK	
Dimensions (W x H x D)	87.3 x 87.3 x 50 mm
Weight	73 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 1400/10 Volume Control
Volume control 12 W, MK installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1400/10**

LBC 1400/20 Volume Control
Volume control 12 W, MK installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1400/20**

LBC 1410/10 Volume Control
Volume control 36 W, MK installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1410/10**

LBC 1410/20 Volume Control
Volume control 36 W, MK installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1410/20**

LBC 1420/10 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/10**

LBC 1420/20 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/20**

LBC 1430/10 Program Selector
Program selector, MK installation type, 5 channel selection, white RAL 9010.
Order number **LBC1430/10**

Accessories

LM1-SMB-MK
Surface mounting box for volume controls LBC1400/10, LBC1400/20, LBC1410/10, LBC1410/20, and Program Selector LBC1430/10, white RAL 9010.
Order number **LM1-SMB-MK**

LBC 14xx/x0 U40 Volume Controls and LBC 1431/10 Program Selector

Features

- 12 W, 36 W and 100 W versions
- Available in power-save or failsafe versions
- Built-in 24 VDC override relay
- Continuous rotating system
- Suitable for 3 and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

Technical specifications

Electrical

LBC 1401/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1411/10 and /20	
Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1420/10 and /20	
Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1431/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off
Connector	Screw terminal

Mechanical

LBC 1401/10 and /20	
Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	214 g
Color	White (RAL 9010)
LBC 1411/10 and /20	
Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	217 g
Color	White (RAL 9010)
LBC 1420/10 and /20	
Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)
LBC 1431/10	
Dimensions (W x H x D)	81 x 81 x 33.4 mm
Weight	110 g
Color	White (RAL 9010)
LM1-SMB-U40	
Dimensions (W x H x D)	80.65 x 80.65 x 45 mm
Weight	60 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 ºC to +55 ºC (+14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 1401/10 Volume Control
Volume control 12 W, U40 installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1401/10**

LBC 1401/20 Volume Control
Volume control 12 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1401/20**

LBC 1411/10 Volume Control
Volume control 36 W, U40 installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1411/10**

LBC 1411/20 Volume Control
Volume control 36 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1411/20**

LBC 1420/10 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/10**

LBC 1420/20 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/20**

LBC 1431/10 Program Selector
Program selector, U40 installation type, 5-channel selection, white RAL 9010.
Order number **LBC1431/10**

Accessories

LM1-SMB-U40
Surface mounting box for volume controls LBC1401/10, LBC1401/20, LBC1411/10, LBC1411/20, and Program Selector LBC1431/10, white RAL 9010.
Order number **LM1-SMB-U40**

PA, Commercial Sound and Emergency Sound

2

Plena Easy Line 58

Plena Public Address Solutions 80

PLENA matrix 109

Plena Public Address and Voice Alarm 119

PLE-10M2-EU Plena Mixer

Features

- 6 microphone/line inputs, plus 3 music source inputs
- 100 V, telephone and a call station input with priority & VOX
- 2 zones and 2-channel operation
- Voice-activated emergency override
- 2-tone chime built in, 7 more chimes optional with call station

The Plena mixer is a high performance, professional public address mixer with modern state of the art features. Combined with the PLE-1P120-EU or PLE-1P240-EU amplifiers, you can build an easy-to-operate yet powerful and flexible public address system. All this without sacrificing features such as ducking, priority, and flexibility. The mixer fulfills a wide variety of public address requirements yet is surprisingly affordable.

Functions

Inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced and can also be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk) input, or the input can be switched automatically if a signal is fed to the input, i.e. if someone speaks into the microphone (VOX activation). A 2-tone chime can be configured to precede an announcement
- Input 2 also has a VOX possibility. When one or both inputs are configured for priority, the attenuation (reduction) of the cinch input can be set between -2 dB (little attenuation) and -∞ dB (mute). This provides a talk-over or voice-over function.

Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Labels and colored pins

More unique features are available such as a detachable label where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window.

Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the green pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Unique features

Separate music inputs are available with their own input selector, volume control and tone control. The user can choose a music source such as a CD player or radio (like the PLN-DVDT), and set the music level. A desired sound for the music source can be set separate from the mic/line inputs. So if the music requires boosted low frequencies, the microphone voices will still be clear – a truly unique feature in its class.
The tone controls also have the following unique features:

- The mixer features separate tone controls for mic/line inputs and music inputs so the microphone voice can be specifically optimized for excellent speech or singing
- The tone controls for music enable the most suitable music reproduction

In addition, the tone controls are not standard bass and treble controls; our experience has enabled us to develop a tone control that can be used as a traditional tone control with high and low control, but with a powerful contour that addresses the problems that are found in real situations.

The tone control for the microphone and line inputs:

- boosts warmth in voices without boosting rumble, and cuts rumble without losing warmth in the low frequencies
- boosts sparkle without adding sharpness in the high frequencies when boosting, and reduces harshness and sharpness without reducing clarity when cutting

The tone control for the music inputs:

- boosts deep bass first without making the sound hollow or boomy, and cuts rumble without losing warmth in the low frequencies
- boosts sparkle without adding sharpness in the high frequencies, with slightly different frequencies to suit music reproduction

Integration

A telephone / 100 V emergency input with VOX activation is provided for easy integration with another PA system or a telephone paging system. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2.

Zones

The mixer has two zone outputs. The music can be switched on and off in the zones via the front panel and optional wall panel. Announcements from the PLE-2CS two-zone call station can be routed to zone 1 or zone 2, or both. Announcements from the tel/100 V input or inputs 1 & 2 are routed to both zones. Input 1 can be used for a PLE-1CS all-call call station or any other microphone or call station with a PTT contact. The unit also has a line output to connect the pre-amplifier output before zone selection, making it possible to create a third zone. This output can be switched to music only, for example, so that music on hold can be provided for the telephone system. Loop-through input and output connections enable external sound processing equipment (e.g. an equalizer or Plena feedback suppressor) while maintaining a balanced connection to the amplifiers.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output before zone selection so you can listen to the output before the signal is sent to the zone.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Six volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Two zone selector buttons
- Background music button

Back

- Dip switches
- Chime level
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Region	Certification
Europe	CE

Installation/configuration notes

Rear view

Parts included

Quantity	Components
1	PLE-10M2-EU Plena Mixer
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Power consumption	24 VA
Battery power supply	
Voltage	24 VDC, +10% / -15%
Current	1 A
Power consumption (maximum)	1 A
Performance	
Frequency response	50 Hz to 20 kHz (+0/-3 dB)
Distortion	<0.1% @ rated output power, 1 kHz
Low Control	Max -12/+12 dB (frequency is setting dependent)
Hi Control	Max -12/+12 dB (frequency is setting dependent)
RJ-45 input	2 x
Call station input	For PLE-2CS(MM)
Wall panel input	For PLE-WP3S2Z
Mic/line input	6 x
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-6 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
Dynamic range	100 dB
S/N (flat at max volume)	>63 dB (mic) >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)

Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
VOX (input 1 & 2)	attack time 150 ms; release time 2 s

Music inputs	3 x
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	1 x
Connector	7-pin Euro style pluggable screw terminal
Sensitivity telephone input	1 V – 10 V adjustable
Sensitivity emergency input	100 V adjustable
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	Threshold 50 mV; attack time 150 ms; release time 2 s

Insert	1 x
Connector	Cinch
Nominal level	1 V
Impedance	>10 kohm

Zone/Master/Music output	3 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	Approx. 4.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%

Ordering information

PLE-10M2-EU Plena Mixer
Mixer, 10 inputs, 2-channels.
Order number **PLE-10M2-EU**

PLE-2MAxx0-EU Plena Mixer Amplifier

BOSCH
Plena Mixer Amplifier

Features

- 6 microphone/line inputs plus 3 music source inputs
- 100 V, telephone and a call station input with priority & VOX
- 2 zones and announcement only output
- Voice activated emergency override
- High output power 120 and 240 Watts

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.
The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.
- Input 2 can be switched automatically if a signal is fed to the input i.e. if someone speaks into the microphone (VOX activation).

When one or both inputs are configured to have priority, the amount of attenuation (reduction) of the cinch inputs, can be set between -2 dB (little attenuation) or -∞ dB (mute). This provides a talk-over or voice-over function. Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Music inputs

Separate music inputs are available with their own input selector and volume control. The user can choose a music source like a CD player or radio (like the PLN-DVDT), and set the level of music.
You can set the desired sound for the music source separate from the mic/line inputs. So if the music needs boosted low frequencies, this does not lead to muddy sounding voices from the microphones. A truly unique feature in its class.

Personalized settings

More unique features are available such as detachable labels where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window. Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Tone controls

The unique tone controls provide separate control for mic/line inputs and music inputs so that the voice on the microphones can be specifically optimized for excellent speech or singing. Correspondingly, the tone controls for background music provide the most appropriate music reproduction.
In addition, the tone controls are not standard bass and treble controls. Our experience has led us to develop a tone control that can be used as a traditional tone control with high and low control, but has a powerful contour that addresses the problems found in real situations.
The tone control for the microphone and line inputs boosts warmth in voices without boosting rumble and cuts rumble without loosing warmth in the low frequencies. In the high frequencies, the tone control boosts sparkle without adding sharpness, but when cutting is first, cuts harshness and sharpness without reducing clarity.
The tone control for the music inputs boosts deep bass first without making the sound boomy, and cuts rumble without loosing warmth in the low frequencies. In the high frequencies the tone control is similar to the microphone inputs, with slightly different frequencies to suit music reproduction.
For easy integration with another PA system or a telephone paging system, a telephone / 100 V emergency input with VOX activation is provided. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2. The unit also has a line output to add amplifiers for larger systems, with more output power, this output can be switched to music only so that for instance music on hold can be provided for the telephone system. Insert (loop through) input and output connections enable external sound processing equipment, such as an equalizer or the Plena feedback suppressor, to be connected between the preamplifier and the power amplifier stages.

Power

These Plena mixer amplifiers come in 120 and 240 Watts output power. This power is directly available on 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 100 V call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Zones

The mixer amplifier has two zone outputs. The music can be switched on and off in the zones via the front panel and optional wall panel. Announcements from the PLE-2CS two-zone call station can be routed to zone 1 or zone 2, or both. Announcements from the tel/100 V input or inputs 1 & 2 are routed to both zones. Input 1 can be used for a PLE-1CS all-call call station or any other microphone or call station with a PTT contact.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output before zone selection so that it is possible to listen to the output before the signal is sent to the zone. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Six volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Two zone selector buttons
- Background music button

Back

- Dip switches
- Chime level
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/configuration notes

Rear view

Parts included

Quantity	Components
1	PLE-2MA120-EU / PLE-2MA240-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Inrush Current PLE-2MA120-EU	8/16 A (230/115 VAC)
Inrush Current PLE-2MA240-EU	9/19 A (230/115 VAC)
Battery power supply	
Voltage	24 VDC, +10% / -15%
Current PLE-2MA120-EU	6 A
Current PLE-2MA240-EU	12 A
Charge current	0.5 ADC
Charge float voltage	27.3 VDC
Power consumption	
PLE-2MA120-EU (mains)	400 VA
PLE-2MA240-EU (mains)	800 VA
Performance	
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz

Low Control	Max -12/+12 dB (frequency is setting dependent)
Hi Control	Max -12/+12 dB (frequency is setting dependent)

RJ-45 input	2 x
Call station input	For PLE-2CS(MM)
Wall panel input	For PLE-WP3S2Z

Mic/line input	6 x
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-6 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom

Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	63 dB
S/N (flat at min volume/muted)	>5 dB
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Headroom	>17 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
VOX (input 1 & 2)	attack time 150 ms; release time 2 s

Music inputs	3x
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	1 x
Connector	7-pin, Euro style pluggable screw terminal
Sensitivity tel	1 V maximum
Sensitivity 100V	100 V maximum
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	threshold 50 mV; attack time 150 ms; release time 2 s

Insert	1 x
Connector	Cinch
Nominal level	1 V
Impedance	>10 kohm

Master/music output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Loudspeaker outputs 100 V*	
Connector	Screw, floating
Max / rated PLE-2MA120-EU	180 W / 120 W
Max / rated PLE-2MA240-EU	360 W / 240 W

Loudspeaker output 8 ohm*	
Connector	Euro style pluggable screw terminal, floating
PLE-2MA120-EU	31 V (120 W)
PLE-2MA240-EU	44 V (240 W)

* Subtract 1 dB for 24 V battery operation.

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight (PLE-2MA120-EU)	Approx. 10.5 kg
Weight (PLE-2MA240-EU)	Approx. 12.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan	<33 dB SPL @ 1 m temperature controlled

Ordering information

PLE-2MA120-EU Plena Mixer Amplifier
Mixer amplifier, 120 W, 10-inputs.
Order number **PLE-2MA120-EU**

PLE-2MA240-EU Plena Mixer Amplifier
Mixer amplifier, 240 W, 10-inputs.
Order number **PLE-2MA240-EU**

PLE-1MAxx0-EU Plena Mixer Amplifier

Features

- 4 microphone/line inputs, plus 3 music source inputs
- 100 V and telephone input with priority & VOX
- Announcement only output, 3-wire volume override
- Voice-activated emergency override
- Wide range of power (30, 60 and 120 Watts)

These Plena mixer amplifiers are high performance, professional public address units with modern state of the art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio.
The amplifier is also surprisingly affordable, without sacrificing features such as ducking, priority and flexibility.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channels 1 and 2 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.
- Input 2 can be switched automatically if a signal is fed to the input i.e. if someone speaks into the microphone (VOX activation).

When one or both inputs are configured to have priority, the amount of attenuation (reduction) of the cinch inputs, can be set between -2 dB (little attenuation) or -∞ dB (mute). This provides a talk-over or voice-over function. Input channels 1 and 2 also feature selectable speech filters to enhance the clarity of announcements.

Music inputs

Separate music inputs are available with their own input selector and volume control. The user can choose a music source like a CD player or radio (like the PLN-DVDT), and set the level of music.

Personalized settings

More unique features are available such as detachable labels where the user can write the names for inputs, music sources and zones. These labels can then be mounted on the front, protected by the clear window. Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Integration

A telephone / 100 V emergency input with VOX activation is provided for easy integration with another PA system or a telephone paging system. It has its own preset volume control and overrides all other inputs, including call station and inputs 1 and 2.
The unit also has a line output to add amplifiers for larger systems with more output power. This output can be switched to music only, for example, so that music on hold can be provided for the telephone system.

Power

The mixer amplifiers come in 30, 60 and 120 Watt output power. This power is directly available on 100 V constant voltage connections and on a low impedance connection for an 8 ohm load. Moreover, the amplifiers have a separate 100 V call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Four volume knobs for microphone inputs
- Knob for treble level
- Knob for bass level
- Headphone socket
- Background music button

Back

- Dip switches
- Ducking level
- Tel/100 V volume control

Interconnections

See Technical Specifications.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/configuration notes

Rear view

Parts included

Quantity	Components
1	PLE-1MAxx0-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC ±10%, 50/60 Hz (reduced power at lower mains or battery voltage)
Inrush current PLE-1MA030-EU	4.5 A
Inrush current PLE-1MA060-EU	5 A
Inrush current PLE-1MA120-EU	10 A

Power consumption	
PLE-1MA030-EU	100 VA
PLE-1MA060-EU	200 VA
PLE-1MA120-EU	400 VA

Performance	
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max -12/+12 dB (frequency is setting dependent)
Treble Control	Max -12/+12 dB (frequency is setting dependent)

RJ-45 input	1 x
Wall panel input	For PLE-WP3S2Z

Mic/Line input	4 x
Input 1 (Push-to-talk contact with ducking functionality)	5-pin Euro style, balanced, phantom 3-pin XLR, balanced, phantom
Input 2-4 (VOX with ducking functionality on input 2)	3-pin XLR, balanced, phantom
Sensitivity	1 mV (mic); 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)
Headroom	>17 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic)

Music input	3 x
Connector	Cinch, stereo converted to mono
Sensitivity	300 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/muted)	>75 dB
Headroom	>25 dB

Emergency / telephone	1 x
Connector	7-pin Euro style pluggable screw connector
Sensitivity Tel	1 V maximum
Sensitivity 100V	100 V maximum
Impedance	>10 kohm
S/N (flat at max volume)	>65 dB
VOX	threshold 50 mV; attack time 150 ms; release time 2 s

Master/music output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm

Loudspeaker output 100 V	
Connector	Euro style pluggable screw terminal, floating
Max / rated PLE-1MA030	45 W / 30 W
Max / rated PLE-1MA060	90 W / 60 W
Max / rated PLE-1MA120	180 W / 120 W

Loudspeaker output 8 ohm	
Connector	Euro style pluggable screw terminal, floating
PLE-1MA030-EU	16 V (30 W)

PLE-1MA060-EU	22 V (60 W)
PLE-1MA120-EU	31 V (120 W)

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	
PLE-1MA030-EU	Approx. 5 kg
PLE-1MA060-EU	Approx. 8.5 kg
PLE-1MA120-EU	Approx. 10.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan (PLE-1MA120-EU)	<33 dB SPL @ 1 m

Ordering information

PLE-1MA030-EU Plena Mixer Amplifier
Mixer amplifier, 30 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA030-EU**

PLE-1MA060-EU Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA060-EU**

PLE-1MA120-EU Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and 3 background music (BGM) inputs.
Order number **PLE-1MA120-EU**

PLE-1Pxx0-EU Plena Amplifier

Features

- 120 and 240 W power amplifier in a compact housing
- 1 V line level balanced input
- 70 V, 100 V and 8 ohm outputs
- 100 V input for slave operation on 100 V speaker line
- Temperature-controlled forced front to back ventilation (directly stackable)

The PLE-1P120-EU and PLE-1P240-EU are two high-power plug-and-play cost effective power amplifiers that deliver 120 and 240 Watts to constant voltage or 8 ohm loads. Built with premium quality and protections, they offer basic functionality at a budget price. The amplifiers offer straight 1 V and 100 V line in, and 70 V, 100 V and 8 ohms out. They can extend the power of the PLE- series mixer amplifiers or be combined with the PLE-10M2-EU mixer, or work anywhere where more power on an existing 100 V line is needed or when a line level signal is provided.

Functions

Protection

The amplifier is protected against overload and short circuits. A limiter protects the amplifier and loudspeaker against accidental overdriving. A temperature-controlled fan ensures proper cooling without producing acoustic noise at lower output levels.

Power input and output

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover. The amplifier also has a built-in charger to charge the connected battery. The system has a balanced input and loop-through facility. This makes it easy to connect multiple amplifiers. The secondary input is a 100 V line input to connect the amplifier to a 100 V loudspeaker line to provide more power in remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED bar shows the output level.

The amplifier has a 70 V or 100 V output for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

Controls and indicators

Front
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- On/off button

Back
- Level control

Interconnections

See Technical Specifications.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Installation/configuration notes

Rear view

Parts included

Quantity	Components
1	PLE-1P120-EU or PLE-1P240-EU Plena Mixer Amplifier
1	Power cord
1	Manual
1	Set of 19”mounting brackets

Technical specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Inrush Current PLE-1P120-EU	4.5/9 A (230/115 VAC)
Inrush Current PLE-1P240-EU	9/18 A (230/115 VAC)
Power consumption PLE-1P120-EU	380 VA
Power consumption PLE-1P240-EU	760 VA

Battery power supply	
Voltage	24 VDC, +10% / -15%
Current PLE-1P120-EU	5.5 A
Current PLE-1P240-EU	11 A

Charge current	0.5 ADC
Charge float voltage	27.3 VDC

Power consumption (PLE-1P120-EU)	
Max power (mains)	227 W
-6dB (mains)	130 W
Idle (mains)	12 W
Max power (24 V)	7 A (150 W)
-6 dB (24 V)	4.4 A (194 W)
Idle (24 V)	0.3 A (7 W)

Power consumption (PLE-1P240-EU)	
Max power (mains)	451 W
-6dB (mains)	244 W
Idle (mains)	16 W
Max power (24 V)	12 A (290 W)
-6 dB (24 V)	8.1 A (194 W)
Idle (24 V)	0.3 A (7 W)

Performance	
Max / rated power PLE-1P120-EU	180 W / 120 W
Max / rated power PLE-1P240-EU	360 W / 240 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz

Inputs	
Connector 1	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
Connector 2	3-pin Euro style, balanced
Sensitivity	100 V
Impedance	300 kohm
Dynamic range	100 dB
CMRR (mic)	>40 dB (50 Hz to 20 kHz)

Loudspeaker outputs 70 V / 100 V	
Connector	Euro style pluggable screw terminals

Loudspeaker output 8 ohm	
Connector	Euro style pluggable screw terminals

PLE-1P120-EU	31 V (120 W)
PLE-1P240-EU	44 V (240 W)

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight (PLE-1P120-EU)	Approx. 10.5 kg
Weight (PLE-1P240-EU)	Approx. 12.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan	<40 dB SPL @ 1 m temperature controlled

Ordering information

PLE-1P120-EU Plena Amplifier
Power amplifier, 120 W, 100 VAC / 70 VAC.
Order number **PLE-1P120-EU**

PLE-1P240-EU Plena Amplifier
Power amplifier, 240 W, 100 VAC / 70 VAC.
Order number **PLE-1P240-EU**

PLE-2CS Plena Two-zone Call Station

Features

- ▶ Modern two-zone call station for the PLE series
- ▶ Selectable gain
- ▶ Speech filter and limiter
- ▶ Output level control
- ▶ Loop-through option for up to 8 call stations

The Plena two-zone call station is a modern, high-quality call station with a stable metal base design, a flexible microphone stem and a unidirectional condenser microphone. It can make calls to selected zones in a public address system built with the PLE series two-zone mixer and mixer amplifiers. In addition to tabletop use, the Plena design allows neat flush-mounting in desktops.

Functions

Gain, speech filter and intelligibility

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility.

Range

The call station has a balanced line level output, giving it a maximum range of 200 meters from the mixer, when using CAT-5 extension cables.

Loop-through

With the loop-through RJ-45 connector, it is possible to daisy chain multiple call stations.

Priority

The priority is automatic i.e. the call station nearest the mixer has priority and can override a call station further from the mixer. When a call is being made by a higher priority call station, a yellow light will display on the lower priority call stations.

Dip switches and status

DIP switches at the base of the call station select different microphone gain levels, chimes, and the speech filter. A service accessible rotary control provides microphone level attenuation. LEDs on the call station show which zones have been selected. An additional LED give visible feedback on the active state of the microphone and the system:

- Green flashing means standby (chime is sounding)
- Green indicates microphone active
- Amber indicates a higher priority call

Controls and indicators

- 2 x status LEDs
- PTT key
- 2 x zone selection keys
- 2 x zone selection LEDs
- DIP switches
- Rotary volume control

Interconnections

- 2 x RJ45 jacks

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Parts included

Quantity	Components
1	PLE-2CS Plena two-zone call station
1	Cable terminated with a lockable CAT-5 connector

Technical specifications

Electrical

Voltage range	24 VDC supplied by PLE mixer amplifier or mixer
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Input sound level (max)	110 dB SPL
Gain preset	-15 / 0 / +6 dB
Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3 dB at 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm

Selections	
Chimes	6

Mechanical

Base dimensions (H x W x D) without microphone	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Stem length with microphone	390 mm (15.35 in)
Cable length	5 m (16.4 ft)
Weight	Approx. 1 kg (2.2 lb)
Mounting	Standalone
Color	Charcoal with silver

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLE-2CS Plena Two-zone Call Station
Two zone call station with metal-base design, flexible microphone stem with unidirectional condenser microphone, two-zone selection.
Order number **PLE-2CS**

PLE-1CS Plena All-Call Call Station

Features

- PTT-key for calls for activation
- Momentary or toggle
- Green LED, indicating microphone active
- Stable metal base design with fixed 2 m cable and lockable Euro style connector
- Phantom powered by amplifier

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin Euro style connector for the balanced signal and the priority contact. If the priority contact is not required, the microphone can be connected to amplifiers with 3-pin Euro style connector.

A green LED indicates when the microphone is active.

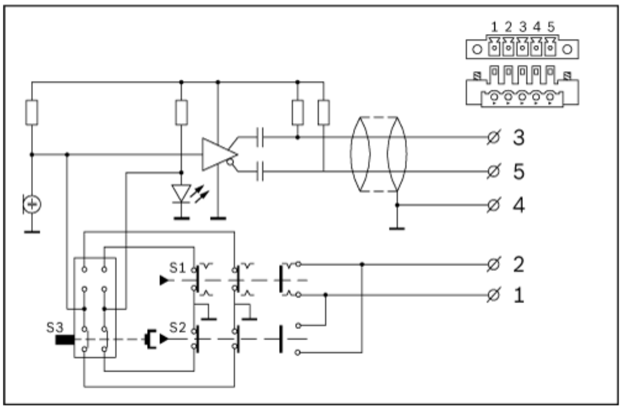
Controls and indicators
- PTT-key
- PTT status LED

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes



Circuit diagram

Parts included

Quantity	Component
1	PLE-1CS PLENA All Call Call Station

Technical specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA

Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver

Stem length with mic.	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLE-1CS Plena All-Call Call Station
All-zone call station with 2 m cable and lockable Euro style connector.
Order number **PLE-1CS**

PLE-WP3S2Z-EU Wall Panel

1
2
3
SELECTOR
ZONE 1
ZONE 2

Features

- Can be used for all Plena Easyline (PLE) mixer-amplifiers
- Remote selection of three music source inputs
- Remote zone selection
- Perfect companion to Bosch volume controls
- Daisy- chain of multiple wall panels

The Plena PLE-WP3S2Z-EU Wall Panel is used to remotely select a music source and activate or deactivate zones of a Plena PLE audio mixer or mixer amplifier.

Functions

Remote zone and Input source control

Two zones and three music input sources can be controlled from a remote location by selecting the individual switches.

Indicators

The ON status of each zone and selected music source is indicated by an LED.

Connections and settings

With the use of CAT-5 cable and RJ-45 connector the PLE-WP3S2Z-EU Wall Panel can be easily and quickly connected to the PLE series mixer or mixer amplifier. Settings are not required.

Daisy chain / Remote locations

Maximum four PLE-WP3S2Z-EU Wall Panels can be daisy chained to remotely control a PLE series mixer or mixer amplifier.

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Region	Certification
Europe	CE

Installation/configuration notes

The Wall Panel is installed to the mixer or mixer-amplifier via standard CAT-5 cable with RJ-45 connector. The maximum cable distance is 200 m. The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design. The appearance is matched to the Bosch Loudspeaker Volume Controls.
The wall panel buttons have the same function as the corresponding buttons of the Plena mixer front panel

Parts included

1	PLE-WP3S2Z-EU Wall Panel
1	Quick Reference Card

Technical specifications

Electrical

Power supply	
Voltage range	5 VDC, supplied by the connected amplifier
Current consumption (typical)	<50 mA
Connectors	
to (mixer) amplifier	1 x RJ-45
Loop through	1 x RJ-45

Mechanical

Dimensions (H x W x D)	87 x 87 x 21 mm (3.43 x 3.43 x 0.83 in)
Weight	Approx. 0.35 kg (0.77 lb)
Color	White
Label text color	Silver

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLE-WP3S2Z-EU Wall Panel
Wall panel for remotely selecting a music source and activating or deactivating zones of an audio mixer or mixer amplifier.
Order number **PLE-WP3S2Z-EU**

PLE-1MExx0-xx Plena Mixer Amplifier

Features

- 4 microphone / line inputs, plus music source input
- Announcement only output, 3-wire volume override
- Wide range of output power (60, 120 and 240 Watts)
- 2-tone chime

These Plena Economy mixer amplifiers are professional public address units with modern state-of-the-art features. They are easy to use, taking the complexity away from the user and putting it where it belongs, inside the equipment. Providing a crisp call or clear music is as easy as turning on the radio. Offering the essentials of public address in an affordable package.

Functions

Microphone and line inputs

All Mic/line inputs can be switched between microphone level and line level sensitivity. The inputs are balanced but can be used unbalanced. Phantom power can be switched on to provide power to condenser microphones.

Input channel 1 can take priority over all other microphone and music inputs:

- Input 1 can be activated by contact closure on the PTT (push to talk). A 2-tone chime can be configured to precede an announcement.

Music input

A separate music input is available with its volume control.

Personalized settings

More unique features are available such as a detachable label where the user can write the names for inputs. This label can then be mounted on the front, protected by the clear window.
Another useful feature is to indicate preferred settings on the front panel by inserting colored pins at the preset levels of all knobs. You can then instruct a user to set all the controls to the silver pins to configure the system for their particular use. A second user can set all controls to the red pins for their configuration.

Power

The mixer amplifiers come in 60, 120 and 240 Watt output power. This power is directly available on 100 V (70 V for US versions) constant voltage connections and on a low impedance connection for a 4 ohm load. Moreover, the amplifiers have a separate 100 V (70 V for US versions) call-only output channel for addressing areas where only priority announcements are required. The call-only output can also be used for 3-wire remote, volume control override.

Output status

An LED VU meter monitors the master output. A headphone socket, below the VU meter, provides the mixer output. For total reliability and ease of use, a limiter is integrated into the output stage to restrict output if the user applies too much signal.

Controls and indicators

Front

- On/off switch
- Power on LED
- LED VU meter for master output (LEDs for -18, -12 -6, -3, 0 dB)
- Master volume knob
- Four volume knobs for microphone inputs
- Volume knob for background music
- Knob for treble level
- Knob for bass level
- Headphone socket

Back

- Dip switches

Certifications and approvals

Safety	acc. to EN 60065
EMC emission	acc. to EN 55103-1
EMC immunity	acc. to EN 55103-2

Parts included

Quantity	Components
1	PLE-1MExx0-xx Plena Mixer Amplifier
1	Power cord
1	Manual
1	Plena Easy Line CD

Technical specifications

Electrical

Mains power supply	
Voltage -EU versions	230 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -CN versions	220 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Voltage -US versions	120 VAC ±10%, 50/60 Hz (reduced power at lower mains voltage)
Inrush current PLE-1ME060-EU or -CN	5 A
Inrush current PLE-1ME120-EU or -CN	10 A
Inrush current PLE-1ME240-EU or -CN	12 A
Inrush current PLE-1ME060-US	10 A
Inrush current PLE-1ME120-US	20 A
Inrush current PLE-1ME240-US	24 A

Power consumption	
PLE-1ME060-xx	200 VA
PLE-1ME120-xx	400 VA
PLE-1ME240-xx	800 VA

Performance	
Frequency response (Line)	60 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Frequency response (Mic.)	70 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
Bass Control	Max. ± 8 dB
Treble Control	Max. ± 8 dB

Mic./Line input	4 x
Input 1 (push-to-talk contact with priority)	5-pin Euro style, balanced, phantom
Input 2	3-pin Euro style, balanced, phantom
Input 3 and 4	TRS Jack (1/4, 6.3mm) balanced
Sensitivity	1 mV (mic.); 300 mV (line)
Impedance	>1 kohm (mic.); >5 kohm (line)
Dynamic range	93 dB
S/N (flat at max volume)	>63 dB (mic.); >70 dB (line)
S/N (flat at min volume/muted)	>75 dB
CMRR (mic.)	>40 dB (50 Hz to 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm (mic.)

Music input	
Connector	Cinch, stereo converted to mono
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	>75 dB
S/N (flat at min volume/muted)	>80 dB
Headroom	>25 dB

Loudspeaker output	
Connector	Screw terminal, floating
Max / rated PLE-1ME060-xx	90 W / 60 W
Max / rated PLE-1ME120-xx	180 W / 120 W
Max / rated PLE-1ME240-xx	360 W / 240 W

Loudspeaker output 4 ohm	
Connector	Screw terminal, floating
PLE-1ME060-xx	15.5 V (60 W)
PLE-1ME120-xx	22 V (120 W)
PLE-1ME240-xx	31 V (240 W)

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Mounting	Stand-alone, 19" rack
Color	Charcoal
Weight	
PLE-1ME060-xx	Approx. 6.5 kg
PLE-1ME120-xx	Approx. 8.9 kg
PLE-1ME240-xx	Approx. 10.5 kg

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%
Acoustic noise level of fan (PLE-1ME240-xx)	<48 dB SPL @ 1 m

Ordering information

PLE-1ME060-EU Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME060-EU**

PLE-1ME120-EU Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME120-EU**

PLE-1ME240-EU Plena Mixer Amplifier
Mixer amplifier, 240 W, 4 microphones and background music (BGM) input.
Order number **PLE-1ME240-EU**

PLE-1ME060-US Plena Mixer Amplifier
Mixer amplifier, 60 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME060-US**

PLE-1ME120-US Plena Mixer Amplifier
Mixer amplifier, 120 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME120-US**

PLE-1ME240-US Plena Mixer Amplifier
Mixer amplifier, 240 W, 4 microphones and 3 background music (BGM) inputs. US version.
Order number **PLE-1ME240-US**

PLE-SDT Plena Easy Line SD Tuner BGM source

USB
01 0021
SKIP
FOLDER
PROG
USB
SD
BOSCH
MONO
FM106.00MHZ CH03
TUNE
PROG
TUNER

Features

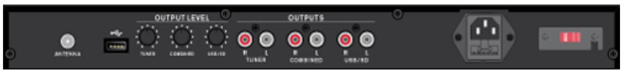
- MP3 playback from SD card and USB inputs
- FM tuner with RDS, presets and digital control
- Simultaneous operation of SD/USB-player and FM tuner
- Separate outputs for digital source and FM tuner

The PLE-SDT Plena Easy Line SD Tuner BGM source is the ideal high-quality source for background music (BGM) in public address systems. It provides hours of uninterrupted music for professional systems. Designed without moving parts, it can be used in systems that are on for long periods. It is designed to be used with non-volatile steady state flash memory.

System overview

The unit has a digital source side for MP3's stored on SD card and USB memory stick, and a side with an FM tuner. It is typically used in hotels, shops, supermarkets, restaurants, bars, canteens, gyms, showrooms, and other places where BGM creates the right atmosphere. It connects to any public address amplifier. The design follows the Plena Easy Line design and is part of the Advantage Line by Bosch.

Functions



With an SD/USB capacity of up to 32 GB (up to 2000 tracks) and the option to connect the USB either on the front or rear panel, the digital player provides hours of high-quality, uninterrupted music playback from a single source. It supports music organized on a disk in multiple folders. The player will automatically search and play all playable MP3's on a flash memory device, and has repeat and random play modes.

Digital Source

It can play MP3's with bit-rates from 32 kbps to 320 kbps, mono / stereo / joint-stereo, and both constant bit-rates (CBR) and variable bit-rate (VBR) are supported.

Tuner

The digitally controlled FM tuner uses a frequency synthesizer for accurate capture of radio stations and has presets for FM to store favorite radio stations.

Outputs

Both the player and the tuner can operate simultaneously on different outputs. The output level of the outputs can be set via the rear panel. Next to the stereo analog outputs per side, there is a combined output that plays the digital content and automatically switches over to the FM tuner when the last track has been played.

Certifications and approvals

Safety	according to IEC/EN 60065
	CCC
	C-Tick
CE	EN 55013+A1+A2,
	EN 61000-3-2,
	EN 61000-3-3+A1
	2006/95/CE LVD Directive
	2004/108/CE EMC
	IEC EN 55020+A2+EC
	CE marking

Region	Certification
Europe	CE

Installation/configuration notes

The PLE-SDT is a 19" rack-mount unit with detachable rack mount brackets for tabletop use. The unit comes with an IR remote control to control all sources. It is compatible with High Capacity Secure Digital (SDHC), MMC memory cards, Flash USB sticks and bus powered (2.5") hard disk drives (HDD). System connection cables are included.

Parts included

Quantity	Components
1	PLE-SDT Plena Easy Line SD Tuner BGM source
1	AC Power cord
1	Safety instructions
1	Set of 19"mounting brackets
1	Remote control
2	2-pair audio RCA cable (2.5 m)
1	SD card including free music and the instructions for use

Technical specifications

Electrical

Mains power supply	
Voltage	115 - 230 VAC ±10%, 50/60 Hz
Power supply fuses	230 VAC 0.63 AT / 250 V
	120 VAC 1.25 AT / 250 V
Power consumtion (typical)	10 W
Power consumption (Max.)	50 VA

FM tuner	
Distortion	< 1 %
Total harmonic distortion (1 kHz)	< 0.8 %
FM range	87.5 ÷ 108 MHz
Frequency response	50 Hz ÷ 12 kHz
Channel separation (1 kHz)	≥ 40 dB
Intermediate rejection	≥ 70 dB
Signal / noise ratio	≥ 50 dB
Intermediate frequency	10.7 MHz
Input sensitivity	6 µV e.m.f. (2 uV)
Automatic tuning sensitivity	≤ 50 µV
Antenna input	75 ohms (coaxial)
Audio output level	- 10 dBV

SD / USB audio player	
Maximum storage capacity	32 GB
Maximum number of tracks	2000
Frequency response	50 Hz ÷ 20 kHz
Signal / noise ratio	≥ 70 dB
Total harmonic distortion (1 kHz)	< 0.1 %
Stereo separation	≥ 60 dB
Audio output level	- 10 dBV

Mechanical

Dimensions (H x W x D)	44 x 444 x 250 mm (1.73 x 17.48 x 9.84 in)
Mounting	Stand-alone, 19" rack (19" wide, 1U high)
Color	Charcoal with silver printing
Weight	Approx. 3.6 kg

Environmental

Operating temperature	-25 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	< 90 % (non condensing)

Ordering information

PLE-SDT Plena Easy Line SD Tuner BGM source
USB/SD MP3 player with FM tuner functions.
Order number **PLE-SDT**

LBB 1925/10 Plena System Pre-Amplifier

Plena System Pre-amplifier
BOSCH

Features

- Six-zone system pre-amplifier, with single or dual channel operation
- Two input channels for call stations
- Universal input for microphone/line, with speech optimized tone control
- Three inputs for BGM selection and music optimized tone control
- Front panel zone selection for BGM and call station zone selection for calls

The Plena system pre-amplifier is a versatile, high-performance unit with call and mono BGM (background music). It fulfills a wide variety of public address requirements at a surprisingly low cost. It can provide dual channel operation for simultaneous calls and BGM for up to six different zones, using two Plena amplifiers.

Functions

The call channel provides two inputs for the Plena call stations, LBB 1941/00 (all-call) or LBB 1946/00 (six-zone), with loop-through capability, and universal, balanced input. One is a 3-pin XLR connector for microphone or line level (selectable), and the other is a 5-pin DIN-connector with all-call priority contact, which may also be used to start one of the available chime attention signals.

The microphone input has a selectable speech filter for improved intelligibility, a volume control, and bass and treble tone controls with shelving characteristics optimized for speech. The call channel is available on the balanced XLR master output.

The BGM channel provides three inputs on stereo cinch-connectors, converted to mono, with front panel selection, volume control and bass and treble tone controls with shelving characteristics optimized for music. The BGM channel has a direct output on balanced XLR for dual channel operation. It can also feed the master output, with the lowest priority, for single channel operation. Zone selector switches on the front panel control the BGM routing. An overload protected 24 VDC output provides power for driving external relays, often making an external power supply unnecessary.

An emergency/telephone input with signal level detector (VOX) and volume preset has the highest priority to all zones. Two trigger inputs (contact closure) activate alarm or time signals to pre-selected zones. Many different chime tones are available. A PC audio input with RS-232 control provides software controlled zone configuration, or automatic messaging in combination with the LBB 1965/00 Plena Message Manager. There are six levels of priority available for BGM, microphone, call stations, trigger inputs and emergency input. A set of relays directs the amplifier output(s) to different loudspeaker groups (zone switching).

Each zone has a tri-state control on the front panel that can turn it off, switch it to the call channel, or to the BGM channel. The all-call microphone input and emergency activation override the call station selection on the call channel. Each zone has separate priority overrides with preset volume levels. This assures an appropriate message volume, independent of any local volume settings, such as for BGM. Both three-wire and four-wire override schemes are supported. An override also activates a voltage-free contact (call-active) available for external control and monitoring. The master output channel, or one of the input channels, can be monitored through the headphone connector and/or the LED VU-meter.

Controls and indicators

Front
- LED power meter
- Power on LED
- Call active LED
- Three knobs for mic/line volume, treble, and bass levels
- Three knobs for BGM volume, treble, and bass levels
- BGM source selection knob
- Six zone-selections keys
- Six zone status LEDs
- On/off switch

Back
- EMG input volume control
- Mains voltage switch

Interconnections

Front
- Headphone jack

Back
- One (DIN or XLR) Mic/line input
- Two (DIN/DIN) call station inputs
- PC audio (cinch) input
- Priority input
- Master (XLR) output
- BGM (XLR) output
- Emergency signal input
- Two trigger inputs
- RS-232 (DE-9)
- Three (cinch) CD, tape, aux inputs
- Six 100 V speaker outputs
- 24 VDC output
- 24 VDC input
- Three control inputs

- Ground screw
- IEC mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes

LBB 1925/10 rear view

Parts included

Quantity	Component
1	LBB 1925/10 PLENA System Pre-amplifier
1	Power cord
1	Set of 19”mounting brackets
1	Plena CD
1	Installation and User Instructions

Technical specifications

Electrical

Mains power supply	
Voltage	230/115VAC, ±15%, 50/60 Hz
Current inrush	230/115 VAC, 1.5/3 A
Max power consumption	25 VA
Battery power supply	
Voltage	24 VDC, +10% / -15%
Current max	1 A
Performance	
Frequency response	50 Hz to 20 kHz (+1 / -3 dB)
Distortion	<0.5%
Bass control	±10 dB @ 100 Hz
Treble control	±10 dB @ 10 kHz
Channel separation	>70 dB @ 1 kHz
Priority mute	>40 dB
Dynamic range	100 dB
Mic/line input	1 x
Connectors	5-pin DIN, 3-pin XLR, balanced, with phantom power
Sensitivity	1 mV (mic), 200 mV (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volme/ muted)	>75 dB
CMRR	>40 dB (50 Hz – 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply	16 V via 1.2 kohm, (mic mode only)
Line input	3 x
Connector	Cinch, stereo converted to mono, unbalanced
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB
S/N (flat at min volume/ muted)	>75 dB
Headroom	>25 dB
Master output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	<100 ohm
Tape output	1 x
Connector	Cinch, 2 x mono
Nominal level	350 mV
Impedance	<1 kohm
Headphone output	1 x
Connector	6.3 mm jack stereo, signal mono
Nominal level	3 V
Impedance	<100 ohm
Zone relays	5 A
Contacts voltage	250 V
Contacts current	8 A
Interconnection input / emergency	1 x
Connector	3-pin XLR, balanced
Sensitivity	200 mV (interconnection), 100 mV to 1 V adjustable (emergency)
Impedance	>10 kohm

VOX threshold	45 mV (emergency)
Interconnection output	1 x
Connector	3-pin XLR, balanced
Nominal level	200 mV
Impedance	<100 ohm
Relay contacts	30 V, 1 A
DC supply output voltage	24 V, 250 mA max

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high)
Weight	Approx. 5 kg
Mounting	Standalone, 19" rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1925/10 Plena System Pre-Amplifier
Pre-amplifier, 6-zone, 2-channel distribution system unit with call and BGM (background music).
Order number **LBB1925/10**

LBB 1941/00 Plena Call Station

Plena
BOSCH

Features

- Stylish all-call call station, intended for LBB 1925/10 system pre-amplifier
- Unidirectional condenser microphone on flexible stem
- Momentary PTT-key for calls
- Selectable gain, speech filter, and limiter for improved intelligibility
- Stable metal base design

The Plena Call Station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem, and a unidirectional condenser microphone. Its purpose is to make calls to all zones (all-call) in a public address system built around the LBB 1925/10 system pre-amplifier. In addition to tabletop use, the special design enables the unit to be neatly flush-mounted in desktops.

Functions

A green LED on the call station gives visible feedback on the active state of the microphone.

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility, even when the speaker moves in front of the microphone.

The call station provides a balanced line-level output, and can be up to 500 m away from the amplifier using extension cables. The LBB 1925/10 can assign different priority levels, and pre and post-call chimes to this call station.

Controls and indicators

- PTT-key
- PTT status LED

Interconnections

- Cable with DIN connector

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Parts included

Quantity	Component
1	LBB 1941/00 Plena Call Station
1	5 m cable terminated with a lockable 8-pin DIN connector
1	Loop through 8-pin DIN socket to add an additional call station LBB 1941/00 or LBB 1946/00

Technical specifications

Electrical

Power Supply	
Voltage range	18 to 24 V (24 V supplied by LBB 1925/10)
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Input sound level (max)	110 dB SPL
Gain preset	+6 / 0 / -15 dB
Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3dB @ 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm

Mechanical

Base dimensions	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	5 m (16.4 ft)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1941/00 Plena Call Station
Call station, all-call call station for LBB1925/10, flexible microphone, flexible microphone stem, and unidirectional condenser microphone.
Order number **LBB1941/00**

LBB 1946/00 Plena Six-zone Call Station

Plena
BOSCH

Features

- Stylish six-zone call station, intended for LBB 1925/10 system pre-amplifier
- Unidirectional condenser microphone on flexible stem
- Six zone selection keys, all-call key, and momentary PTT-key for calls
- Selectable gain, speech filter, and limiter for improved intelligibility
- Selectable priority levels and different pre and post-call chimes

The Plena Six-zone Call Station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem, and a unidirectional condenser microphone. It can make calls to selected zones (one to six and all-call) in a public address system built around the LBB 1925/10 system pre-amplifier. In addition to tabletop use, the special design enables the unit to be neatly flush-mounted in desktops.

Functions

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility. The call station has a balanced line level output, making it possible to position it up to 100 m away from the LBB 1925/10, using extension cables.

Dipswitches on the bottom of the call station configure different pre and post-call chimes, as well as the priority level. LEDs on the call station indicate selected zones, and an additional, two-color LED gives visible feedback on the active state of the microphone and the system. Green indicates microphone on or chime active (flashing LED); amber indicates that the system is occupied by a source with a higher priority or operation error (flashing LED).

Controls and indicators

- PTT-key
- PTT status LED
- Six zone selection keys
- Six zone selection LEDs
- All-call key
- All-call status LED
- Eight DIP switches

Interconnections

- Cable with DIN connector

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Parts included

Quantity	Component
1	LBB 1946/00 Plena Six-zone Call Station
1	5 m cable terminated with a lockable 8-pin DIN connector
1	Loop through 8-pin DIN socket to add an additional call station LBB 1941/00 or LBB 1946/00

Technical specifications

Electrical

Power Supply	
Voltage Range	18 to 24 V (24 V supplied by LBB 1925/10)
Current consumption	<30 mA
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Maximum input sound level	110 dB SPL
Gain preset	+6 / 0 / -15 dB
Limiter threshold	2 V
Compression ratio limiter	1:20
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3dB @ 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm
Selections	
Chimes	18 different combinations
Priorities	2 different priorities

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	5 m (16.4 ft)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1946/00 Plena Six-zone Call Station
Six-zone call station for making calls to selected zones (one to six and all-call), stable metal-base design, flexible microphone stem, unidirectional condenser microphone.
Order number **LBB1946/00**

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone

Plena
BOSCH

Features

- Stylish tabletop unidirectional condenser microphone on a flexible stem
- Phantom powered by amplifier
- Momentary or toggle PTT-key for calls with priority contact
- Green LED, indicating microphone active
- Stable metal base design with fixed 2 m cable and lockable DIN connector

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, mainly intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin DIN connector for the balanced signal and the priority contacts. If the priority contacts are not required, the microphone can be connected to amplifiers with 3-pin XLR-inputs, using the DIN to XLR adapter.

A green LED indicates when the microphone is active.

Controls and indicators

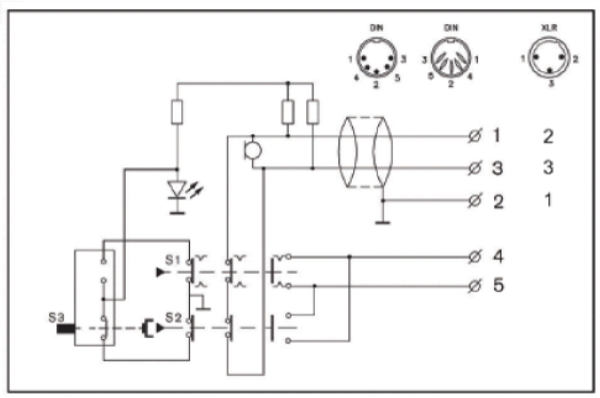
- PTT-key
- PTT status LED

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes



Circuit diagram

Parts included

Quantity	Component
1	LBB 1950/10 PLENA Tabletop Unidirectional Condenser Microphone
1	DIN to XLR adapter

Technical specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA
Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone
Tabletop unidirectional condenser microphone on a flexible stem.
Order number **LBB1950/10**

LBB 1930/20 Plena Power Amplifier

Features

- 120 W power amplifier in a compact housing
- 70 V / 100 V and 8 ohm outputs
- Dual inputs with priority switching
- 100 V input for slave operation on 100 V speaker line
- Temperature controlled forced front to back ventilation, directly stackable.

The LBB 1930/20 is a powerful 120 W power amplifier in a 2U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control.

An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

The LBB 1930/20 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not receive announcements made via the priority input.

Controls and indicators

Front
- Meter (LED's for -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator

Back
- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back
- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Emergency	acc. to EN 60849

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

Parts included

Quantity	Component
1	LBB 1930/20 Plena Power Amplifier
1	Power cord

1	Set of 19" mounting brackets
1	Safety Instructions
1	Cable with XLR connector

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC ±10%, 50/60 Hz
Inrush current	8 A
Max power consumption	400 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	6 A
Performance	
Output power (rms/maximum)	120 / 180 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1 / -3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	274 W
-3dB	193 W
-6dB	143 W
Pilot tone*	41 W
Idle	18 W
24 VDC operation	
Max power	7.0 A (168 W)
-3 dB	6.0 A (144 W)
-6 dB	4.3 A (103 W)
Pilot tone*	0.9 A (22 W)
Idle	0.1 A (2.4 W)

* 20 kHz -20dB with maximum loudspeaker load

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high, with feet)
Weight	Approx. 10.5 kg
Mounting	Standalone, 19"rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering information

LBB 1930/20 Plena Power Amplifier
Power amplifier, 120 W power amplifier in a 2U-high, 19” case for rack mounting or tabletop use.
Order number **LBB1930/20**

LBB 1935/20 Plena Power Amplifier

BOSCH
Plena Amplifier

Features

- 240 W power amplifier in a 2U high housing
- EN 54-16 certified
- 70 V / 100 V and 8 ohm outputs
- Dual inputs with priority switching
- 100 V input for slave operation on 100 V speaker line

The LBB 1935/20 is a powerful 240 W power amplifier in a 2U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfils a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot-tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The amplifier has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control.

An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads.

The amplifier has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not receive announcements made via the priority input.

Controls and indicators

Front
- Meter (LED's for: -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator

Back
- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back
- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16

Region	Certification
Europe	CE
	CPD
	CPD
Poland	CNBOP

Parts included

Quantity	Component
1	LBB 1935/20 Power Amplifier
1	Power cord

1	Set of 19" mounting brackets
1	Safety Instructions
1	Cable with XLR connector

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz
Inrush current	9 A
Max power consumption	760 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	11 A
Performance	
Output power (rms/maximum)	240 / 360 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1 / -3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	451 W
-3dB	340 W
-6dB	244 W
Pilot tone*	55 W
Idle	16 W
24 V operation	
Max power	12.1 A (290 W)
-3 dB	11.4 A (274 W)
-6 dB	8.1 A (194 W)
Pilot tone*	1.7 A (41 W)
Idle	0.3 A (7 W)

* 20 kHz -20dB with maximum loudspeaker load

Mechanical

Dimensions (H x W x D)	100 x 430 x 270 mm (19" wide, 2U high, with feet)
Weight	Approx. 12.5 kg
Mounting	Standalone, 19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering information

LBB 1935/20 Plena Power Amplifier
240 W power amplifier in a 2U high 19” case for rack mounting or tabletop use.
Order number **LBB1935/20**

LBB 1938/20 Plena Power Amplifier

Features

- ▶ 480 W power amplifier in a 3U high 19” housing
- ▶ EN 54-16 certified
- ▶ 70 V / 100 V and 8 ohm outputs
- ▶ Dual inputs with priority switching
- ▶ 100 V input for slave operation on 100 V speaker line

The LBB 1938/20 is a powerful 480 W power amplifier in a 3U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfils a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.

The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.

For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The LEDs of pilot-tone supervision and battery status can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The amplifier has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input is provided to connect the amplifier to a 100 V loudspeaker line, to provide more power to remote locations.

Gain or level control is located on the rear of the unit to avoid accidental setting change. A meter with LED-bar shows the output level.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems and a low impedance output for 8 ohm loudspeaker loads.

The amplifier has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not get any announcements made via the priority input.

Controls and indicators

Front
- Meter (LED's for -20, -6, 0 dB and Power ON)
- Battery operation indicator
- Overheat indicator
- Air inlet for forced air cooling

Back
- Level control input 1
- Level control input 2
- Power button
- Mains switch

Interconnections

Back
- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker output terminals
- 24 VDC power supply terminal
- Three loudspeaker direct output terminals
- Two 100 V slave input terminals
- Input 2 enable control terminal
- Input 1 priority control terminal
- Earth connection screw
- Mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

Parts included

Quantity	Component
1	LBB 1938/20 Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Safety Instructions

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz
Inrush current	19 A
Max power consumption	2200 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	30 A
Performance	
Output power (rms/maximum)	480 W / 720 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB @ -10 dB ref. rated output)
Distortion	<1% @ rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	990 W
-3dB	715 W
-6dB	510 W
Pilot tone*	110 W
Idle	25 W
24 VDC operation	
Max power	32 A (770 W)
-3 dB	26 A (625 W)
-6 dB	18 A (430 W)
Pilot tone*	3.8 A (91 W)
Idle	0.7 A (17 W)

* 20 kHz -20 dB with maximum loudspeaker load

Mechanical

Dimensions (H x W x D)	145 x 430 x 370 mm (19" wide, 3U high, with feet)
Weight	Approx. 25 kg
Mounting	Standalone, 19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL @ 1 m (max output)

Ordering information

LBB 1938/20 Plena Power Amplifier
480 W power amplifier in a 3U high 19”case for rack mounting or tabletop use.
Order number **LBB1938/20**

PLN-1P1000 Plena Power Amplifier

Features

- ▶ 1000 W power amplifier in a 3U high housing
- ▶ EN 54-16 certified and EN 60849 compliant
- ▶ 70 V / 100 V and 8 ohm outputs
- ▶ Dual inputs with priority switching
- ▶ 100 V input for slave operation on 100 V speaker line

The PLN-1P1000 is a powerful 1000 W power amplifier in a 3U high 19” case for rack mounting or tabletop use. LEDs on the front panel show the status of the amplifier: power, audio output level, and supervised functions. This high-performance unit fulfills a wide range of public address requirements at a surprisingly low cost.

Functions

Dependability

The amplifier is protected against overload and short circuits. A temperature-controlled fan ensures high reliability at high output levels, and low acoustic noise at lower output levels. An overheat protection circuit switches off the power stage and activates an LED on the front panel, if the internal temperature reaches a critical limit due to poor ventilation or overload.
The unit operates both on mains power and on a 24 V battery power supply for emergency back up, with automatic switchover.
For emergency and evacuation use, the following functions are monitored: mains presence, battery present, pilot tone presence, amplifier operation. Front panel LEDs indicate the status of supervised functions. The of pilot tone supervision and battery status LEDs can be switched off for general public address use. Failsafe (normally energized) relays are provided for each supervised function. These relays are always active regardless of the switches on the rear panel.

Input

The system has two balanced inputs with priority control, each with a loop-through facility. This makes it easy to connect remote systems that require priority control. An additional 100 V line input can connect the amplifier to a 100 V loudspeaker line, to provide more power to remote locations.

Output

The amplifier has 70 V and 100 V outputs for constant voltage loudspeaker systems, and a low impedance output for 8 ohm loudspeaker loads. A meter with LED-bar shows the output level.
The PLN-1P1000 has two separate priority controlled 100 V outputs for zones that only need announcements made via the priority input, and for zones that will not get any announcements made via the priority input.

Controls and indicators

Front
- LED level meter
- Battery operation LED
- Overheat LED

Back
- Power button
- Mains switch

Interconnections

Back
- Priority line input 1 (XLR/balanced)
- Line loop-through 1 (XLR/balanced)
- Program line input 2 (XLR/balanced)
- Line loop-through 2 (XLR/balanced)
- Priority controlled loudspeaker outputs
- 24 VDC power supply terminal
- Three loudspeaker direct outputs
- Two 100 V slave inputs
- Input 1 enable control terminal
- Input 2 priority control terminal
- Earth connection screw
- Mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Region	Certification
Europe	CE
	CPD
	CPD
Poland	CNBOP

Parts included

Quantity	Component
1	PLN-1P1000 Plena Power Amplifier
1	Power cord
1	Set of 19" mounting brackets
1	Safety Instructions

Technical specifications

Electrical

Mains power supply	
Voltage	230 VAC, ±10%, 50/60 Hz

Inrush current	16 A
Max power consumption	2200 VA
Battery power supply	
Voltage	24 VDC +15% / -15%
Current max	48 A
Performance	
Output power (rms/maximum)	1000 W / 1500 W
Power reduction on backup power	-1 dB
Frequency response	50 Hz to 20 kHz (+1/-3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
S/N (flat at max volume)	>90 dB
Line inputs	2 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz to 20 kHz)
Gain	40 dB
100 V input	
Connector	Screw, unbalanced
Sensitivity	100 V
Impedance	330 kohm
Line loop-through output	2 x
Connector	3-pin XLR
Nominal level	1 V
Impedance	Direct connection to line input
Loudspeaker outputs	3 x
Connector	Screw, floating
Direct output	100 V, 70 V, 8 ohm
Priority only (from input 1)	100 V or 70 V internally selectable
Music (non-priority) only	100 V or 70 V internally selectable

Power consumption

Mains operation	
Max power	2200 W
-3dB	1472 W
-6dB	1058 W
Pilot tone*	345 W
Idle	115 W
24 VDC operation	
Max power	62 A (1500 W)
-3 dB	34 A (823 W)
-6 dB	25 A (597 W)
Pilot tone*	7.6 A (182 W)
Idle	1.5 A (36 W)

* 20 kHz -20dB with maximum loudspeaker load

Mechanical

Dimensions (H x W x D)	145 x 430 x 430 mm (19" wide, 3U high, with feet)
Weight	Approx. 32 kg
Mounting	Standalone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering information

PLN-1P1000 Plena Power Amplifier
Power amplifier, powerful 1000 W power amplifier in a 3U-high, 19” case for rack mounting or tabletop use.
Order number **PLN-1P1000**

PLN-1LA10 Plena Loop Amplifier

Features

- High power, current driven amplifier
- Two microphone/line inputs, one priority input (100 V)
- Selectable frequency range and tone controls
- Limiter and automatic gain control (AGC)
- Integrates in an EN 54-16 and EN 60849 compliant system

The PLN-1LA10 Loop Amplifier is a cost-effective amplifier designed to drive a wire loop installed in the floor or ceiling, covering an area of up to 600 m^2 per amplifier. This solution enables hearing-aid users in the area enclosed by the wire loop to hear all announcements, or music. Hearing-aid users can set their devices to the T-mode setting to receive the signal coming from the loop. They receive announcements in excellent audio-quality, without the background noise or reverberations that normally impair intelligibility for people with hearing disabilities.

Functions

The loop amplifier can be connected to a mixing amplifier's line level output, or it can accept up to two microphone/line signals directly. A 100 V priority input is available for uplink to a Plena Voice Alarm System. This input can be monitored for the presence of a pilot-tone. The built-in supervision monitors all key functions of the loop amplifier, and the fault state is available on a failsafe relay. This makes it possible to use the loop amplifier in an IEC 60849 compliant system, and to include the induction loop in the supervised transmission paths.

For added ease, the loop amplifier is equipped with a limiter that keeps the output field strength below the prescribed 100 mA/m. This circuitry can also be set to an automatic gain control (AGC) that amplifies weak signals for enhanced intelligibility, while attenuating loud signals. This ensures that all information is presented at a comfortable listening level.

The unit has tone controls and a metal loss compensation circuit to adjust the sound to the program material and the environment. The controls have locks to prevent unwanted access after they have been adjusted.

The loop amplifier is stackable (master/slave configuration) to cover very large areas, and supports low spillover schemes. Its unique quadrate configuration provides uniform field strengths even over multiple loops.

Controls and indicators

Front

- LED power meter
- Current meter
- Four LEDS for fault, limiter, AGC, loop integrity
- Headphones socket
- Two tone controls
- Three input volume controls (master and two channels)
- On/off switch

Back

- Metal loss compensation control
- Supervision switch
- Voltage selector
- Frequency range switch
- AGC/Limiter switch
- AGC range control
- VOX/mix switch
- Pre/post amp switch
- Two phantom power switches
- Two Mic/line switches

Interconnections

Back

- Master input
- Two slave outputs
- Audio inputs
- Priority input
- Induction loop output
- Line output
- Fault output
- Ground screw
- Mains socket

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1
Induction loop systems	acc. to EN 60118-4
EVAC	acc. to EN 60849 acc. to EN 54-16

Region	Certification
Europe	CE

Installation/configuration notes

PLN-1LA10 rear view

Parts included

Quantity	Component
1	PLN-1LA10 Loop Amplifier
1	Power cord
1	Set of 19” mounting brackets
1	Plena CD
	Safety Instructions

Technical specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	7 A at 230 VAC / 14A at 115 VAC
Max power consumption	500 VA
Performance	
Output current	10 A
Frequency response	50 Hz to 10 kHz (+1/-3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
Bass control	-8/+8 dB at 100 Hz
Treble control	-8/+8 dB at 10 kHz
Mic/line input	2 x
Connector	3-pin XLR, balanced mic/line level (switchable)
Sensitivity	1 mV / 1 V (mic/line)
Impedance	>1 kohm
Dynamic Range	100 dB
S/N (flat at max volume)	75 dB
Headroom	25 dB
Phantom power supply	16 V (switchable)
VOX functionality	Input 1 (switchable) mutes input 2
VOX sensitivity	-10 dB ref nominal input
Priority input	
Connector	Screw
Sensitivity	100 V, transformer balanced
Impedance	>100 kohm
S/N (flat at max volume)	63 dB
Headroom	25 dB
Pilot tone detection	-20 dB, ref 100 V (10 V)
Pilot tone threshold	-26 dB, ref 100 V (5 V)
Master input*	1 x
Connector	1/4" TS jack
Line output	
Connector	3-pin XLR, balanced
Nominal level	1 V
Impedance	200 ohm
Loop output	
Connector	Screw
Slave output	(for master input of other PLN-1LA10)
Connector	1/4”TS jack 0° to 90°
Fault Relay	
Connector	Screw
Contacts	100 V, 2 A (voltage free, SPDT)

* Only intended for slave output of another PLN-1LA10. Plugging a jack into this input disables all other inputs and the limiter. The unit becomes a slave to the connected master. Only the master control on the front panel will function. To monitor the level, switch the VU meter switch to POST Amp.

Mechanical

Dimensions (H x W x D)	94 x 430 x 320 mm (19" wide, 2U high)
Weight	Approx. 11.6 kg
Mounting	Stand-alone, 19" rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<35 dB SPL at 1m, temperature controlled

Ordering information

PLN-1LA10 Plena Loop Amplifier
Drives a wire loop installed in the floor or ceiling, covering an area of up to 600 m^2 per amplifier.
Order number **PLN-1LA10**

PLN-2AIO120 BGM/Paging System

Features

- All-in-one solution for background music and paging
- DVD/CD-player for video and audio
- Supports MP3, JPEG, and multi-format video outputs
- FM/AM tuner with 10 presets and digital control
- Dual-zone 120 W mixer amplifier with volume control per zone

The Plena BGM/paging system is the versatile all-in-one solution to cover all needs for background music (BGM), making announcements and paging people. This high-performance yet affordable unit is very easy to install and operate.
It is typically used in shops, supermarkets, restaurants, bars, schools, canteens, gyms, garages and other places where BGM creates the right atmosphere, and also amplified speech needs to be heard clearly.

Functions

DVD/CD Player

The DVD/CD player provides up to a whole workweek of high quality uninterrupted music playback from a single MP3 DVD. It supports music organized on a disk in multiple folders. The player will automatically search and play all playable formats on a disk, and has repeat mode. Navigation is done on the multi lingual on screen display.

The unit plays normal audio and video DVD/CDs, as well as long-play MPEG2, MP3 encoded CDs. It can also play MP3s and display JPEGs on CD-R, DVD-ROM, DVD-R. MP3-files with bit-rates from 32 kbps to 320 kbps, mono/ stereo/joint-stereo, and both continuous bit-rates (CBR) and variable bit-rate (VBR) are supported. Component, composite, and S-Video connectors are available for video output. The unit plays PAL and NTSC content in progressive scan as well as interleaved.

The disc part of the unit also has a TOSlink optical output that supports S/P DIF as well as DST and Dolby Digital. It is possible to output S/P DIF regardless of the source and choose left/right, surround channels of Low frequency effects on this output.

Basic controls are on the unit itself, while navigation and configuration is done with the remote control and the on screen display. The unit supports most major languages, and it is possible to set regional preference, such as subtitle language preference.

FM/AM Tuner

The digitally controlled FM/AM tuner uses a frequency synthesizer for accurate capture of radio stations and has 10 presets for each waveband to store favorite programs. An auxiliary (music) input and tape output provide connections for external equipment.

Microphone Inputs

The announcement part of the unit has three balanced microphone inputs. Microphone input 1 has a DIN socket on the rear for a priority microphone (e.g. the LBB 1950/00) with selectable priority, a two-tone chime to precede a priority announcement, a speech filter, phantom power. It also has a phone jack connector on the front with selectable VOX activation for a dynamic microphone, such as the LBC 2900/15, as well as presets for music ducking level and chime volume. Microphone inputs 2 and 3 have XLR sockets with selectable phantom power, and are mixed with the BGM. All microphone inputs and the music source have their own volume control, with a shared bass and treble tone control and a shared master volume control.

Outputs

The powerful 120 W output section has two transformer-isolated, 100 V constant voltage outputs for driving 100 V-loudspeakers in two separate zones. The 100 V-technique reduces line losses on longer distances and allows easy parallel connection of multiple loudspeakers. Both zones can be selected individually from the front panel, and the output level for each zone can be individually set. Each zone also has a low-voltage output for connecting 8 ohm, transformerless loudspeakers (consumer-type). There is a separate, 100 V call-only output for addressing an area where announcements are necessary, but BGM is not desired. A voltage-free call-active contact is available for overriding local volume controls during priority calls, and for other purposes. An LED meter monitors the output.

Controls and indicators

Front

- Power on/off
- Disc eject key
- Disc previous key
- Disc play key
- Disc next key
- Disc stop key
- Disc display
- Disc repeat key
- Disc pause key
- Tuner memory keys 1-5 and 6-10
- Tuner shift key to select memory 1-5 or 6-10
- Tuner program key
- Tuner scan key

- Tuner FM/AM selection key
- Tuner frequency up/down keys
- Tuner display

Back

- Mains voltage selection
- Chime selection DIP switch
- Phantom power switch

Interconnections

Back

- FM antenna input
- AM antenna input
- Tape output (mono, 2 x)
- Aux input (stereo converted to mono)
- Call only output
- Zone 1 output
- Zone 2 output
- Call active output
- Component video output (3 x)
- Composite video output
- Digital optical output
- Earth connection screw
- Mains connection

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Parts included

Quantity	Component
1	PLN-2AIO120 PLENA BMG/Paging System
1	Power cord
1	Remote control
1	Installation and User Instructions
1	Plena CD

Technical specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	8 A @ 230 VAC / 16 A @ 115 VAC
Max power consumption	400 VA
Max/rated output power	180 W / 120 W
Performance	
Frequency response	60 Hz to 18 kHz (+1/-3 dB @ ref. rated output)
Distortion	<1% @ rated output, 1 kHz
Bass control	-8/+8 dB @ 100 Hz
Treble control	-8/+8 dB @ 10 kHz

Mic input	1 x
Connectors	5-pin DIN, balanced, 6.3 mm jack
Sensitivity	1 mV
Impedance	>1 kohm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/ muted)	75 dB
Headroom	25 dB
Speech Filter	-3 dB @ 315 Hz, high-pass, 6 dB/oct
Phantom power supply (on 5-pin DIN)	12 V
VOX (on 6.3 mm jack)	Attack time 200 ms, release time 2 s, ducking level adjustable
Mic input	2 x
Connector	3-pin XLR, balanced
Sensitivity	1m V
Impedance	>1 kohm
S/N (flat at max volume)	63 dB
S/N (flat at min volume/ muted)	75 Db
Headroom	25 dB
Phantom power supply	12 V
Auxiliary input	
Connector	Cinch, converted to mono
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	70 dB
S/N (flat at min volume/ muted)	75 dB
Headroom	25 dB

Tuner		
Tuning range	FM	87.5 to 108 MHz (Europe, 50 kHz;
		Asia / USA, 100 kHz)
	AM	531 to 1602 kHz(Europe, 9 kHz)
		530 to 1610 kHz(Asia / USA, 10 kHz)
FM sensitivity		2 µV (26 dB S/N)
AM sensitivity		30 µV (20 dB S/N)
Frequency response		30 Hz to 15 kHz (+1 / -3 dB, FM)
Distortion		<1%
S/N		>63 dB (1 mV, FM)
Tuner output		1 x
Connector		Cinch, (RCA) stereo

Nominal level	200 mV
DVD-Player	
Frequency response	20 Hz to 20 kHz (+1/-3 dB)
Distortion	<0.1%
S/N	>96 dB
General	
MP3 bit rates	CBR 32 kbps to 320 kbps and VBR, mono and stereo
Data buffer shock protection	16 MB
DVD/CD player output	1 x
Optical output	TOSlink (PCM, multi channel)
Supported Formats	DVD, CD, (re-)writables MP3, MP4, JPEG
Video outputs	
Component connectors	3 x cinch
Composite connector	1 x cinch
S-video connector	1 x mini-DIN
General	
Data buffer	8 MB (shock protection)
Lifetime	>10.000 CD play cycles
Max number of titles	999 (MP3), 99 (audio CD)
Tape output	
Connector	Cinch, 2x mono
Nominal level	350 mV
Impedance	1 kohm
Loudspeaker outputs	6 x 2
Connector	Screw, floating
100 V outputs	120 W rated (all zones together)
Zone output attenuation taps	100/70/50/35/25/18 V for 0/-3/-6/-9/-12/-15 dB (120/60/30/15/8/4 W)
8 ohm outputs	18 V (40 W rated per zone)
Call-active	1 x
Connector	Screw
Relay	Voltage free, max 100 V, 2 A

Mechanical

Dimensions (H x W x D)	144 x 430 x 320 mm (19" wide, 3U high)
Weight	Approx. 11.6 kg
Mounting	Standalone (rack mounting not recommended)
Color	Charcoal

Environmental

Operating temperature	-10 °C to +45 °C (14 °F to +113 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%
Acoustic noise level of fan	<35 dB SPL at 1 m, temperature controlled

Ordering information

PLN-2AIO120 BGM/Paging System
An all-in-one solution for background music (BGM), announcements, and paging people.
Order number **PLN-2AIO120**

LBB 1965/00 Plena Message Manager

Features

- Highly flexible stand-alone digital message player
- Up to 12 messages and 12 trigger inputs
- Downloads messages from a PC in WAV format
- Compliant with standards for emergency sound systems
- Zone control for Plena system preamplifier LBB 1925/10

The Plena message manager is a high performance, highly versatile stand-alone digital message player. Applications range from spot announcements in supermarkets and theme parks to warning and evacuation messages in emergency situations.

Functions

Messages

Up to 12 messages can be stored in the internal 64Mbit EEPROM, without the need for data retention battery backup. Each message can have any length within the total available capacity. A PC uploads messages and configurations via RS-232 to the unit, which can then operate without a PC. The standard WAV format is used for messages with sample rates of 8 kHz to 24 kHz with 16-bit word length (linear PCM). This gives up to 500 seconds of recording time with a CD-quality signal-to-noise ratio. The use of linear PCM instead of a compressed audio format, such as MP3, ADPCM and u-law/A-law, ensures high-quality playback of all types of audio signals, including sound effects and special tones, such as attention chimes.

The unit has 12 contact closure trigger inputs for announcements. Each can be configured for a sequence of up to four messages from those available. In this way messages can be used in combination with other messages, optimizing flexibility and storage space usage. When used together with the six-zone LBB 1925/10 Plena System Pre-Amplifier, a zone selection can be configured for each trigger input. The message manager communicates this selection to the LBB 1925/10 via an RS-232 connection. Continuous activation of a trigger input causes the corresponding message sequence to repeat.

Trigger Inputs

The trigger inputs have a serial priority, i.e., input 1 has priority over input 2, input 2 over input 3, etc. The high priority trigger inputs 1-6 are only accessible as contacts on the rear panel to prevent accidental use. The lower priority trigger inputs 7-12 are also available as trigger switches on the front panel.

Integrity and Dependability

The LBB 1965/00 can also play emergency/evacuation messages, as it fulfills the IEC 60849 standard. The microcontroller continually checks the data integrity of the system, and a watchdog circuit, in turn, checks the microcontroller. The unit monitors the D/A converter with a pilot tone, and the high priority trigger inputs (one to six) for cable short circuits and breaks. A 24 V battery backup connection with automatic fail-safe provides continued operation if the mains power should fail. A 20 kHz pilot tone can be mixed with the output signal to supervise the link to the next amplifier. This also works for loudspeaker supervision in combination with 20 kHz detectors. Any failure causes a red LED fault indication, and activates a fault output contact.

Loop-through Facility

The LBB 1965/00 provides a loop-through facility with balanced XLR and unbalanced cinch inputs and outputs. This allows the unit to be inserted into an existing audio link. As long as no announcements are playing, the signal input is routed to the output. If an announcement begins, the input signal is interrupted and the announcement is routed to the output.

Updating

Messages and configuration settings are uploaded from a PC. After uploading, the trigger inputs 7-12 can be configured by using the front panel switches, without the need for a new upload or even a PC. Message content can be monitored using the available headphone jack.

Certifications and approvals

Safety	according to EN 60065
Immunity	according to EN 55103-2
Emission	according to EN 55103-1

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes

LBB 1965/00 back view

Parts included

Quantity	Component
1	LBB 1965 Plena Message Manager
1	Power cord
1	Set of 19" mounting brackets
1	Plena CD
1	Installation and User Instructions

Technical specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	1.5 A at 230 VAC / 3 A at 115 VAC
Max power consumption	50 VA
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	1 A
Performance	
Supported sample rates (fs)	24 / 22.05 / 16 / 12 / 11.025 / 8 kHz
Frequency response	
@ fs=24kHz @ fs=22.05kHz	100 Hz to 11 kHz (+1 / -3 dB) 100 Hz to 10 kHz (+1 / -3 dB)
@ fs=16kHz	100 Hz to 7.3 kHz (+1 / -3 dB)
@ fs=12kHz	100 Hz to 5.5 kHz (+1 / -3 dB)
@ fs=11.025kHz	100 Hz to 5 kHz (+1 / -3 dB)
@ fs=8kHz	100 Hz to 3.6 kHz (+1 / -3 dB)
Distortion	<0.1% at 1 kHz
S/N (flat at max volume)	>80 dB
Supervision DAC	1 Hz pilot tone
Line input	1 x
Connector	3-pin XLR, balanced
Sensitivity	1 V
Impedance	20 kohm
CMRR	>25 dB (50 Hz-to 20 kHz)
Line input	1 x
Connector	Cinch, unbalanced
Sensitivity	1 V
Impedance	20 kohm
Trigger input	6 x
Connector	Screw
Activation	Contact closure
Supervision method	Cable loop resistance check
Line output	1 x
Connector	3-pin XLR, balanced
Nominal level	1 V, adjustable
Impedance	<100 ohm
Line output	1 x
Connector	Cinch, unbalanced
Nominal level	1 V, adjustable
Impedance	<100 ohm
Message active output	1 x
Connector	Screw
Relay	100 V, 2 A (voltage free, SPDT)
Fault output	1 x
Connector	Screw
Relay	100 V, 2 A (voltage free, SPDT)
Interconnection	1 x
Connector	9-pin D-sub (RS-232)
PC protocol	115 kb/s, N, 8, 1, 0 (upload)
LBB 1925/10 protocol	19.2 kb/s, N, 8, 1, 0 (zone control)

Messages

Data format	WAV-file, 16-bit PCM, mono
Memory capacity	64 Mb EEPROM
Recording/playback time	500 s @ fs=8 kHz 167 s @ fs=24 kHz
Number of messages	12 (maximum)
Data retention time	>10 years

Mechanical

Dimensions (H x W x D)	56 x 430 x 270 mm 2.20 x 16.92 x 10.62 inch (19" wide, 1U high, with feet)
Weight	Approx. 3 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1965/00 Plena Message Manager
A high-performance, highly versatile stand-alone digital message player.
Order number **LBB1965/00**

LBB 1968/00 Plena Feedback Suppressor

Features

- Patented feedback suppression algorithm
- Suppresses feedback before it occurs
- Automatically adapts to the acoustical situation
- Up to 12 dB additional gain before feedback occurs
- Balanced line or microphone input with phantom supply

The Plena feedback suppressor uses a powerful DSP with a patented algorithm to suppress acoustic feedback. It actively filters out unwanted room reverberations using an echo-cancellation and de-reverberation algorithm. By adding masked (inaudible) noise to the output signal or by shifting the frequency of the output signal by five hertz, the Plena feedback suppressor is able to detect the reverb component of the signal and remove it before feedback occurs. This leaves the original signal intact.

Functions

The adaptive filter can be switched between fast mode and accurate mode. The fast mode is for situations where the microphone position changes over time, such as in a discussion system with multiple switching microphones. The accurate mode is for situations with a fixed microphone position, such as on a pulpit where the acoustical environment is more stable. The adaptive filter is allowed to converge more slowly, suppressing reverberation components even more effectively. Depending on the acoustical environment and the chosen mode of operation, up to 12dB of additional gain is possible before acoustic feedback occurs.

The Plena feedback suppressor also features a built-in automatic mixer for the two microphone inputs. In many situations, such as on a rostrum, a pulpit or a conference table, two microphones are used to capture the voice of a moving speaker better, even though this increases the risk of acoustic feedback. To counter this, the automatic mixer in the Plena feedback suppressor reduces the gain of the microphone with the lowest signal input and increases the gain of the microphone with the highest signal input. This way, it tracks the moving speaker for optimum speech intelligibility, while maintaining a maximum feedback margin by keeping the combined gain constant. The automatic mixer function remains operational even when the feedback suppressor is deactivated.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes

LBB 1968/00 back view

Parts included

Quantity	Components
1	LBB 1968/00 Plena Feedback Suppressor
1	Power cord
1	Set of 19“ mounting brackets
1	0.5 m XLR cable
1	Installation and User Instructions
1	Plena CD

Technical specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	1.5 A @ 230 VAC / 3 A @ 115 VAC
Max power consumption	50 VA
Performance	
Sample rate (fs)	32 kHz
Frequency response	125 Hz to 15 kHz
Distortion	<0.1 % @ 1 kHz
Gain (bypass mode)	0 dB line in, 24 / 36 / 48 dB mic in
Gain (active mode)	0 dB line in, 24 / 36 / 48 dB mic in
S/N	> 90 dB
Signal delay	<11 ms
Decorrelator	Frequency shift, 5 Hz up Masked noise

Mic / line input	1 x
Connectors	3-pin XLR, 5-pin DIN, balanced
Max level	18 / 6 / -6 dBV line in, -18 / -30 / -42 dBV mic in
Impedance	10 kohm / 2 kohm (line / mic)
CMRR	> 25 dB (50 Hz to 20 kHz)
Phantom power	16 V (mic only, switchable)
Priority control	Loop through of pin 4 and 5 of DIN
Mic input	1 x
Connectors	3-pin XLR, 5-pin DIN, balanced
Max level	-18 / -30 / -42 dBV
Impedance	2 kohm
Phantom power	16 V (switchable)
Priority control	Loop-through of pin 4 and 5 of DIN
Line input	1 x
Connector	Cinch, unbalanced
Max input level	18 / 6 / -6 dBV
Impedance	20 kohm
Line output	1 x
Connector	3-pin XLR, balanced
Max level	18 / 6 / -6 dBV (line in), 6 dBV (mic in)
Impedance	<100 ohm
Line output	1 x
Connector	Cinch, unbalanced
Max level	18 / 6 / -6 dBV (line in), 6 dBV (mic in)
Impedance	<100 ohm
Mic output	
Connector	5-pin DIN, balanced
Max level	22 / -34 / -46 dBV (line in), 34 dBV (mic in)
Impedance	<100 ohm
Priority control	Loop-through of pins 4 and 5 of DIN from inputs

Mechanical

Dimensions (H x W x D)	56 x 430 x 270 mm (19" wide 1U high)
Weight	3 kg (6.6 lb)
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1968/00 Plena Feedback Suppressor
Powerful digital sound processor with a patented algorithm for suppressing acoustic feedback.
Order number **LBB1968/00**

PLN-6TMW Plena Weekly Timer

Features

- Two weekly programs
- 14 Chimes
- Six contact outputs
- Automatic daylight/standard time
- BGM level control

The Plena Weekly Timer is an accurate timer for use in public address systems. It is ideally suited for schools, shopping malls and all other venues that need regularly timed messages, signals or other controls. It is ideally suited for connection to the Plena Message Manager and Voice Alarm System.

Functions

The unit has two weekly schedules as well as a pause mode, where all actions except the clock display are suspended. Events can be programmed with an accuracy of one minute. There is no limit to the number of events, every minute may have an event associated with it. Each day can have a separate event set, and two schedules can be programmed. The schedule can be selected via the front panel. Each event can trigger:

- A chime
- Any combination of output contacts
- BGM volume change

The timer can broadcast 14 different chimes via the audio throughput. It has six programmable output contacts with relays to connect to other equipment. Programmed contact events can open or close the contact or generate a pulse of a configurable duration. The contacts can also be controlled via buttons on the front panel.

The unit has an audio input and output to attenuate BGM signals. The volume can be controlled directly from the front panel, or programmed to change level at fixed times, for example, to automatically attenuate music in the morning or evening hours. It can automatically revert to the programmed level at the next event.

The timer has a clock sync input to synchronize the time with an external source but can also take the correct time from a PC. This way it can synchronize with a time server. The timer clock also keeps track of the date, ensuring correct weekday display and automatic daylight/standard time setting. (According to European, North American, user defined dates or off). The timer has a 24 V backup power input with reverse-polarity protection as well as a back up battery that preserves the correct clock setting. Synchronization and programming is done via the USB port. Programming can also be performed via the front panel. An RS-232 connector is available to connect to a large separate display.

Certifications and approvals

Safety	according to EN 60065
Immunity	according to EN 55103-2
Emission	according to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes

Rear view

Parts included

Quantity	Component
1	PLN-6TMW Plena Weekly Timer
1	Power cord
1	Set of 19" mounting brackets
1	Plena CD
1	Instructions for use

Technical specifications

Electrical

Mains power supply	
Voltage	230/115VAC, ±15%, 50/60 Hz
Max power consumption	30 W
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	1 A
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Total harmonic distortion	< 0.01 % (1kHz)
S/N	<85 dB
Dynamic range	>100 dB
Line input	1 x
Connector	XLR balanced
Sensitivity	1 V

Impedance	>5 kohm
Headroom	>25 dB
Line output	1 x
Connector	XLR balanced
Impedance	>100 ohm
Clock	
Accuracy (without sync)	25 ºC: better than <2 s/month -10 ºC to 55 ºC: <3.5 s/month
Sync input	NO, contact closure synchronizes to the nearest hour
Output contacts	
Connector	MC 1,5/6-ST-3,5
Rating	100 V, 1 A, voltage free

Mechanical

Dimensions (H x W x D)	48 x 440 x 312 mm 1.88 x 17.32 x 12.28 inch (without brackets, with feet) 44 x 483 x 312 mm 1.73 x 19.01 x 12.28 inch (with brackets, without feet)
Weight	Approx. 3 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal with silver

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLN-6TMW Plena Weekly Timer
Weekly timer for scheduling messages, signals or other controls, such as the timed locking and unlocking of doors.
Order number **PLN-6TMW**

PLM-8M8 PLENA matrix 8 Channel DSP Matrix Mixer

Features

- Complete DSP zone matrix mixer and loudspeaker processor
- 4 microphone/line, 3 music source, call station and emergency inputs
- 8 independent output zones, and “Amp Link” outputs
- Ethernet control and Windows PC GUI, and an iOS app for zone control via iPhone and iPad
- RS485 connection for call stations and wall control panels

The PLM-8M8 PLENA matrix 8 Channel DSP Matrix Mixer is designed for maximum flexibility and reliability. It is the heart and soul of the PLENA matrix system. When combined with PLM-8CS call stations, PLM-WCP wall control panels and the PLM-4Px2x amplifiers; it is suitable for almost any application that requires up to 8 zones of high fidelity speech and background music (BGM).
The audio quality is suitable for live music, background music, high demand speech environments and zone announcement applications.
Some typical application include: Shopping centers, schools, restaurants, bars, nightclubs, cafes, gyms, recreational facilities, churches, warehouses, office buildings, regional airports, train stations, bus terminals, boardrooms, meeting rooms, conference facilities, small theme parks, museums, back of house performing arts centers and sports stadia.

Functions

Controls and indicators

The indicators on the front panel are; Phantom power active, signal/clip, call station audio bus, output signal present, RS485 and Ethernet.
There are no controls on the front or the rear panels of the unit. This is to reduce the assistance from good intentioned end users who wish to assist in “improving” the sound levels.
The mains power switch is located on the rear of the unit.

Graphic User Interface (GUI)

The GUI for both PC Windows and iOS app, has a user screen; giving the end user the ability to select their own background music source and mix any microphone/ line input without affecting other zones in the system.
The Windows GUI also provides and intuitive installation package, packed with powerful DSP features that will make any install easier. Both the iOS app and PC GUI are able to be customized for different levels of user access.

DSP features

The DSP features are accessed via either the PC GUI software or the iPad application.
Input:

- Input gain: -16dB pad, +48V phantom power, 100Hz HPF.
- Input Dynamic Range Compressor: Threshold, ratio, attack, release and gain.
- Input parametric EQ: Bands are each selectable as either: bell, shelf, or notch filters.
- Cross over provides: HPF and LPF up to the 8th order.
- Output parametric EQ: Each of the 7 bands are selectable as either: Bell, Shelf, Notch, or as an All pass filter.
- Output delay, with 120ms per output.
- Output Dynamic Range Compressor: Threshold, ratio, attack, release, and gain per channel.
- Output level giving the ability to limit the maximum output level to the zone.
- Zone mute and global system mute.

Global Features

- Zone mixer: Allows each zone to select music sources inputs and mix 4 mic./line inputs individually, per zone. This zone mixer is available as an iPad or iPhone app.
- Administrator password protection of the advanced functions on the PC GUI. This will protect the installation set up from “enthusiastic” end users.
- Output assignment: Allows an output to mimic the inputs from another zone, particularity useful when room combining or when using and active 2-way speaker system or a sub woofer.
- Drag and drop settings on one processing block into another zone, making it simple to duplicate EQ, compression, delay etc.
- The PC GUI software and files are streamlined so that they can be easily emailed, if required.
- Priorities and Overrides: There are 4 priorities that can be assigned to any of the call stations. In addition there is an emergency input that is activated by a contact closure which will have the overall priority of the system.
- Presets: Store and recall 5 presets (or snapshots) DSP configurations. The user can quickly and easily recall these settings without the need of administrator access. Very useful for multipurpose venues.

Connections and Amp Link

Inputs

- Mic./line via 4x XLR/TRS combo 3-pin (balanced), BGM (music source) via 3x Cinch RCA style connectors.

Output

- All 8 zone outputs are via Phoenix Euro screw terminal block (balanced) these same outputs are duplicated in Amp link Zones 1-4 and 5-8 via two RJ45 connectors.

Amp Link

- Amp Link allows the simple and quick connection of 4 audio channels from a PLM-8M8 PLENA matrix 8 channel Matrix Mixer to a PLM-4Px2x amplifier via one STP CAT 5 cable. This feature makes the look of the rack neater and cuts installation time and labour cost.

Other connectors

- Ethernet data and connection to a PC is via RJ45 Ethernet port.
- iPad connection requires the addition of an off the shelf wireless router, connected to the Ethernet port.
- The mains power is via 1x ST3 IEC connector.
- Call stations and wall control panels are connected via RJ45 and use the RS485 control protocol.
- The logic override is via 1x Phoenix terminal block connector.

Certifications and approvals

Safety	According to EN 60065
EMC emission	According to EN 55103-1
EMC immunity	According to EN 55103-2

Region	**Certification**
Europe	CE

Installation/configuration notes

Accessories

The accessories such as the PLM-8CS call station and PLM-WCP wall control panel use the RS485 control protocol and can be installed in series (daisy-chain) reducing cable runs within an installation.

Parts included

Quantity	Components
1	PLM-8M8 8 Channel DSP Matrix Mixer
1	Power cord
1	Set of 19”mounting brackets
1	Safety documentation

Technical specifications

Electrical

Power supply	
Mains voltage:	
• Nominal input voltage	100 - 240 VAC ±10%, 50/60 Hz
• Input voltage limits	90 - 264 VAC
Power consumption:	
• No devices connected	<10 W
• Max. load/max. devices connected	54 W

Performance	
Frequency response (-1dB)	20 Hz to 20 kHz (+0/-3 dB)

Mic./line input	4x
Input Clip level:	
• Pad off	8.4 dBu (6.2 dBV)
• Pad on	24.2 dBu (21.9 dBV)
CMRR (1 kHz, 0 dBFS))	>46 dB
Phantom power supply	48 V
THD	<0.01 %
Dynamic range (A-weighted)	>103 dB
Connectors	4x XLR/TRS combo

BGM inputs	3x
Input clip (Pad on)	10.2 dBu (8 dBV)
THD	<0.004 %
Dynamic range (A-weighted)	>103 dB
Connectors	3x pair of Cinch RCA

Outputs	
Output level	17.7 dBu (15.5 dBV)

Logic inputs	
Connector	2-pole Phoenix terminal (metric)

8CS and WCP (RS485)	
Call station connector	1x RJ45
Wall control panel connector	1x RJ45

Amplifier	2x
Connector	RJ45
Nominal level	1 V
Impedance	<100 ohm

Ethernet (10/100 Mbit/s)	1x
Connector	RJ45

Mechanical

Dimensions (H x W x D)	45 x 440 x 358 mm 1.8 x 17.3 x 14.1 in (19" wide, 1RU high)
Mounting	Stand-alone, 19" rack
Color	Trafic black (RAL 9017) Silver (RAL 9006)
Weight	Approx. 6 kg Approx. 13.23 lb

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%

Ordering information

PLM-8M8 PLENA matrix 8 Channel DSP Matrix Mixer
Mixer, digital sound processor, 8 channels.
Order number **PLM-8M8**

Accessories

PLM-4P125 PLENA matrix 4 Channel DSP 125W Amplifier
Amplifier, digital sound processor, 4 channels, 125 W.
Order number **PLM-4P125**

PLM-4P220 PLENA matrix 4 Channel DSP 220W Amplifier
Amplifier, digital sound processor, 4 channels, 220 W.
Order number **PLM-4P220**

PLM-8CS PLENA matrix 8 Zone Call Station
Call station, 8 zones.
Order number **PLM-8CS**

PLM-WCP PLENA matrix Wall Control Panel
Wall control panel, 8 zones.
Order number **PLM-WCP**

PLM-4Px2x PLENA matrix DSP Amplifiers

Features

- 4-channel, Class D power amplifier
- 100V/70V/8Ω/4Ω outputs
- Complete loudspeaker processing DSP with input mixing; controlled by PC GUI and iOS app
- Amp Link to connect easily with PLM-8M8
- Environmentally friendly auto standby mode

The PLM-4Px2x PLENA matrix Amplifiers are built to perform. Designed to be reliable, cost effective, multi channel amplifiers; they are suitable for almost any application that demands high quality audio and flexible control.
The built-in DSP processor is packed with powerful features. The loudspeaker library will allow the easy tuning of Bosch/EV/Dynacord loudspeaker products. The power saving mode on the amplifier allows the amplifier to save over 80% of its running costs when areas are not being used. Equipped with “Amp Link”, combining both the PLM-4Px2x amplifiers with the PLM-8M8 8 Channel DSP Matrix Mixer couldn’t be easier.
Some typical application include: Shopping centers, schools, restaurants, bars, nightclubs, cafes, gyms, recreational facilities, churches, warehouses, office buildings, regional airports, train stations, bus terminals, boardrooms, meeting rooms, conference facilities, small theme parks, museums, back of house performing arts centers and sports stadia.

Functions

Controls and indicators

The indicators on the front panel are; Signal/Clip, fault per channel and mains power. There are no controls on the front of the unit; this is to reduce the assistance from “overly helpful” venue staff. However, on the rear of the unit there is attenuation for the 4 output channels, dip switches for changing the input sensitivity, bridging the amplifier channels; and the mains power switch. All other controls and indicators are available via the PC GUI software.

DSP features

The DSP features are accessed via the PC GUI software.

- Input Mixer: Each of the 4 amplifier channels has an separate input mixer. Via the PC GUI it is possible to mix any of the 4 line inputs and have level control over the override input and noise generator. Effectively creating a very powerful stand-alone mixer amplifier.
- Cross over: Provides HPF, LPF up to the 8th order for each channel.
- Output EQ: Every zone has a 8-band fully functional parametric EQ. It also contains the dynamic bass enhancement feature.
- Delay: Output delay for 120ms per channel.
- DRC (Dynamic Range Compressor): Threshold, ratio, attack, release, and gain per channel.
- Output level: Ability to limit an amplifier channels output.
- Output Level mixer: Each amplifier output is separately controlled on the one screen making it easy to adjust and operate.
- Fault and thermal indication per amplifier channel.
- Channel mute and system mute.
- Manual standby.
- Control via PC GUI and/or iOS control app. Third party control software can be used to control the output level mixer and standby modes over ethernet.

Dynamic Bass Enhancement

An area that is tuned well and sounds good at normal levels can sound thin when the volume is turned down. The Dynamic Bass Enhancement automatically gives a more full sound even at low SPL. When the zone is restored to the normal level the bass enhancement decreases proportionally to the restore the preset level and tuning.

Standby and auto standby mode

The standby mode reduces the environmental impacts and the running costs of owning power amplifiers, making it much more cost effective and environmentally friendly than other amplifiers.
Standby can be engaged and disengaged manually via the PC GUI software, or with the addition of a Bosch motion detector it can become an “auto standby mode”. In zone(s) where activity has stopped the amplifier will automatically shift to a low power consumption mode after a pre determined time. When the area does become active again the amplifier simply restores to being fully active in under a second by ramping the background music back in smoothly.
The amplifier also comes equipped with a 12 VDC power output, to make installation of motion detectors simple and easy.

Certifications and approvals

Safety	According to EN 60065
EMC emission	According to EN 55103-1
EMC immunity	According to EN 55103-2

Region	Certification
Europe	CE
	CE

Installation/configuration notes

Connections and Amp Link

Inputs

The PLM-4Px2x amplifiers are equipped to be used with either TRS jack, 3 pin XLR or Phoenix Euroblock on each of the input channels. As these connections are wired in

parallel; simply loop out via the connection that isn't being used as the input. In addition the Amp Link input makes connection to the PLM-8M8 DSP matrix mixer very easy. Simply connect the supplied CAT 5 cable to the Amp Link ports on each unit and it carries 4 channels of audio from the DSP matrix mixer to the amplifier. No set up or configuration required.
In addition there is an balanced line level override input that can activated by a contact closure. This input will override all the other inputs in the amplifier.

Output

Connections to 100V, 70V, 8 ohm and 4 ohm outputs are available for each channel. Outputs can be bridged channels 1-2 and/or 3-4 via dip switches. All output impedances and configurations are supported simultaneously. So as an example: Ch1-2 are bridged with a 4 ohm load, Ch3 has 100V and Ch4 has a 8 ohm load; This is all possible with no loss of performance.

Parts included

Quantity	Components
1	PLM-4P125 or PLM-4P220 Power Amplifier
1	Power cord
1	Set of 19”mounting brackets
1	CAT 5 cable 26 AWG shielded (1 m)
1	Safety documentation

Technical specifications

Electrical

Power supply	
Mains voltage:	
• Nominal input voltage	100 - 240 VAC ±10%, 50/60 Hz
• Input voltage limits	90 - 264 VAC
Power consumption (-6dB/idle/ standby):	
• PLM-4P125	254 W / 27 W / 6 W
• PLM-4P220	412 W / 36 W / 6 W

Performance	
Rated outputs voltage/impedance	100 V / 70 V / 8 ohm / 4 ohm
Rated output power per channel (continous *):	
• PLM-4P125	130 W
• PLM-4P220	220 W
Rated output power per channel (burst *):	
• PLM-4P125	130 W
• PLM-4P220	220 W
Bridged (CH 1-2 / 3-4) (continous *):	
• PLM-4P125	250 W
• PLM-4P220	385 W
Bridged (CH 1-2 / 3-4) (burst *):	
• PLM-4P125	250 W
• PLM-4P220	445 W
THD+N (1 kHz, 6 dBFS):	
• PLM-4P125	0.1 %
• PLM-4P220	0.03 %
Dynamic range (A-weighted):	
• PLM-4P125	>101 dB
• PLM-4P220	>102 dB
Frequency response (-1dB)	65 Hz to 20 kHz (+0/-3 dB)
Crosstalk @ 1 kHz	<-70 dB

* According to CEA-490-A R-2008

Connectors	
Inputs (wired in parallel):	• 4x 3-pin XLR balanced • 4x 3-pole balanced Phoenix terminal (Metric) • 1x RJ45 (Amp Link)
• Loudspeaker output	4x 3-pole Phoenix terminal (Metric)
• Logic and standby overide	2-pole Phoenix terminal (Metric)
Ethernet Network 10/100 Mbps	RJ45
12 V output power for motion sensor	2-pole Phoenix terminal (Metric)

Mechanical

Dimensions (H x W x D)	90 x 440 x 417 mm 3.5 x 17.3 x 16.4 in (19" wide, 2RU high)
Mounting	Stand-alone, 19" rack
Color	Trafic black (RAL 9017) Silver (RAL 9006)
Weight:	
• PLM-4P125	Approx. 15 kg Approx. 33 lb
• PLM-4P220	Approx. 18 kg Approx. 39.7 lb

Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%

Ordering information

PLM-4P125 PLENA matrix 4 Channel DSP 125W Amplifier
Amplifier, digital sound processor, 4 channels, 125 W.
Order number **PLM-4P125**

PLM-4P220 PLENA matrix 4 Channel DSP 220W Amplifier
Amplifier, digital sound processor, 4 channels, 220 W.
Order number **PLM-4P220**

PLM-8M8 PLENA matrix 8 Channel DSP Matrix Mixer
Mixer, digital sound processor, 8 channels.
Order number **PLM-8M8**

PLM-8CS PLENA matrix 8 Zone Call Station
Call station, 8 zones.
Order number **PLM-8CS**

PLM-WCP PLENA matrix Wall Control Panel
Wall control panel, 8 zones.
Order number **PLM-WCP**

PLM-8CS PLENA matrix 8 Zone Call Station

Features

- Capacitive touch
- Programmable zone selection
- Modern aesthetic design
- Powered from PLM-8M8
- Loop-through to connect with either more Call Stations or Wall Control Panels

The PLM-8CS PLENA matrix 8 Zone Call Station is an accessory of the PLM-8M8 PLENA matrix 8 channel DSP Matrix Mixer, and like any good accessory it has a complementary aesthetic design, but behind the good looks and sleek design, there is a product of substance and usability.
With one touch, the call station can call either a single zone, or a user defined group of zones.
Installation couldn’t be easier; Powered over standard CAT 5 from the PLM-8M8, the unit’s communication is via RS485, this means that multiple call stations can be daisy-chained together reducing cable runs and installation time.

Functions

Controls and indicators

There are 8 capacitive touch areas on the surface to select zones before a call, and the LED lights are white. The PTT button is a mechanical interface, to give the user tactile feedback that the PTT has been activated. In addition to this feedback there is a LED strip above the PTT button to give the indications when the zone is busy “red”, to wait while a preamble chime is being played “yellow”, and to indicate the microphone is open and active “green”. LEDs illuminate in the microphone stem and the PTT LED strip giving the user confidence that the microphone is open and active.

Labeling

Labeling the unit couldn't be easier. Simply use the PC GUI software to print of the labels. This will also include white text on black background, so the aesthetics of the unit are kept.

Unit ID and Priorities

Priorities are made in the software of the PLM-8M8 8-channel DSP Matrix Mixer, and each call station has its unique ID, this is set via DIP switches in the base of the call station.

Certifications and approvals

Safety	According to EN 60065
EMC emission	According to EN 55103-1
EMC immunity	According to EN 55103-2

Region	**Certification**
Europe	CE

Installation/configuration notes

Loop Through.

Both PLM-8CS and PLM-WCP Wall Control Panel units can be connected in series (daisy-chain), reducing the number of cable runs that need to be made in an installation. Both PLM-8CS and PLM-WCP are powered from the PLM-8M8 8 Channel DSP Matrix Mixer.
Is a daisy chain of 8 call stations, we recommend the safe cable distance to be a maximum of 500 m to the last unit in the chain.

Parts included

Quantity	Components
1	PLM-8CS 8 Zone Call Station
1	Safety documentation

Technical specifications

Electrical

Power supply (supplied by PLM-8M8)	
Voltage range	30 - 50 VDC
Power consumption	1.5 W

Performance	
Microphone type	Cardoid
Frequency response (-3dB)	100 Hz to 20 kHz (+0/-3 dB)
Input Clip level	-11 dBu (-13.3 dBV)
THD+N (1 kHz, 6 dBFS):	<0.03 %
• Dynamic range (A-weighted) (mid gain setting)	>97 dB(A)
• Output level	24.4 dBu (22.2 dBV)

Connectors	2x
RS485 loop-through	RJ45

Mechanical

Base dimensions (H x W x D)	50 x 156 x 140 mm (2 x 6.1 x 25.5 in)
Microphone stem length	390 mm (15.35 In)
Color	Trafic black (RAL 9017) Silver (RAL 9006)
Weight	Approx. 0.77 kg Approx. 1.69 lb

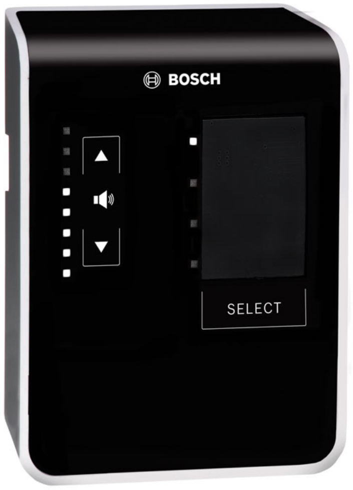
Environmental

Operating temperature	-10 ºC to +45 ºC
Storage temperature	-40 ºC to +70 ºC
Relative humidity	<95%

Ordering information

PLM-8CS PLENA matrix 8 Zone Call Station
Call station, 8 zones.
Order number **PLM-8CS**

PLM-WCP PLENA matrix Wall Control Panel



Features

- Capacitive touch
- Source selection
- Volume control
- Powered from PLM-8M8
- Loop-through to connect with either more Wall Control Panels or Call Stations

The PLM-WCP PLENA matrix Wall Control Panel is an accessory of the PLM-8M8 PLENA matrix 8 channel DSP Matrix Mixer, and like any good accessory it has a complementary aesthetic design, but behind the good looks and sleek design, there is a product of substance and usability.
Installation couldn’t be easier; Powered over standard CAT 5 from the PLM-8M8, the unit’s communication is via RS485, this means that multiple PLM-WCPs can be daisy-chained together with the PLM-8CS 8 Zone Call Station, reducing cable runs and installation time.

Functions

Controls and indicators
Controls on the unit are all capacitive touch, and the LED lights are white, this gives a clean look and feel to the unit.
The select button simply toggles through each of the 4 possible selections. There are 2 configurations and during installation the DIP switch on the rear of the unit can be set to make the selection area either; A) 4 microphone/line inputs, so that each can be mixed individually in a zone, or B) 3 separate music sources that are switched, and an off.

Labeling
Labeling the unit couldn't be easier. Simply use the PC GUI software to print of the labels. This will also include white text on black background, so the aesthetics of the unit are kept.

Certifications and approvals

Safety	According to EN 60065
EMC emission	According to EN 55103-1
EMC immunity	According to EN 55103-2

Region	Certification
Europe	CE

Installation/configuration notes

Loop Through.
Both PLM-WCP and PLM-8CS 8 Zone Call Station can be connected in series (daisy-chain), reducing the number of cable runs that need to be made in an installation. Both these units are powered from the PLM-8M8 8-channel DSP Matrix Mixer via the same CAT 5 cable.

Installation bracket
The unit is designed for surface mounting and comes complete with a bracket that fixes to the wall and the unit clips into the bracket. There are 3 cable entry options on the unit to make installation as easy as possible.

Parts included

Quantity	Components
1	PLM-WCP Wall Control Panel
1	Installation bracket
1	Safety documentation

Technical specifications

Electrical

Power supply (supplied by PLM-8M8)	
Voltage range	30 - 50 VDC
Power consumption	0.5 W

Connectors	**2x**
RS485 loop-through	RJ45

Mechanical

Base dimensions (H x W x D)	130 x 100 x 30 mm 5.1 x 3.9 x 1.2 in
Mounting	Surface mount bracket
Color	Trafic black (RAL 9017) Silver (RAL 9006)
Weight	Approx. 0.13 kg Approx. 0.29 lb

Environmental

Operating temperature	-10 °C to +45 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

Ordering information

PLM-WCP PLENA matrix Wall Control Panel
Wall control panel, 8 zones.
Order number **PLM-WCP**

Plena Voice Alarm System Overview

Features

- EN 54-16 certified and EN 60849 compliant
- Up to 120 zones
- Up to eight call stations
- One-channel or two-channel operation
- Fully supervised system

The Plena Voice Alarm System is designed for public address and emergency evacuation in small to medium-sized applications such as factories, offices, hotels, shopping malls, supermarkets, sports facilities, schools and universities. All the essential EVAC functionality, such as system supervision, spare amplifier switching, loudspeaker line surveillance, digital message management and a fireman’s panel interface is combined with proven audio technology to guarantee excellent speech intelligibility and message delivery. The Plena Voice Alarm System offers extensive possibilities, with emergency call (EMG) and BGM audio channels, up to 120 zones, eight call stations, and two remote control panels. It can function as a one-channel, or as a two call-channel (BGM & call) system. It is compatible with the Plena BGM source units and Plena amplifiers. Bosch can deliver EVAC compliant loudspeakers and accessories for an integrated public address and voice alarm solution.

Functions

The Plena Voice Alarm System is the integrated solution for BGM and EVAC. It complies with the EN 54-16 and EN 60849 standards, including full system supervision, loudspeaker line impedance supervision, a supervised emergency microphone on the front panel and a supervised message manager for up to 255 pre-recorded messages and chimes. The messages can be combined, allowing even more flexible use of pre-recorded announcements and evacuation messages. Each message can have any length within the total available capacity of 16 MB. Messages and configurations are uploaded from a PC via USB into the memory, after which the unit operates without a PC connection.

The controller can be used as a stand-alone system with up to six zones, or expanded to up to 120 zones using additional six-zone routers. Up to eight call stations can be connected. Interconnections are made using standard RJ45 connectors and (shielded) CAT-5 cable.

With a maximum of 1000 W per router, the audio output uses standard analog audio 100 V line switching for full compatibility with the Plena family of public address equipment and Bosch EVAC-compliant loudspeakers. The system is configured using DIP switches for basic functionality, and a PC for more advanced functions. Up to 18 priority levels can be specified for optimum system flexibility.

Six zones can be selected on each call station, and call station keypads can be connected to increase the number of selectable zones or zone groups to 54.

The controller and each connected router have 12 trigger inputs to start business and emergency messages. Each can be configured for a message consisting of a sequence of up to eight wave files. In this way some wave files may be used in different combinations with other messages, optimizing flexibility and used storage space. Together with this sequence, a zone selection can be configured for each trigger input.

Certifications and approvals

Emergency	acc. to EN 54-16 / EN 60849

Technical specifications

Maximum total cable length between the controller and the last router in the chain	1000 m
Maximum total cable length between the controller and the last call station in the chain	1000 m
Maximum total cable length between the controller and the RC panel	1000 m
PC connection for system configuration	USB 2.0
Maximum power consumption per router	1000 W
Interconnections	CAT-5
Maximum number of zones supported	120
Maximum number of call station supported	8
Maximum number of key pads per call station	8
Maximum number of messages	255

LBB 1990/00 Plena Voice Alarm Controller

Features

- Heart of the Plena Voice Alarm System
- EN 54-16 certified and EN 60849 compliant
- Message manager and 240 W amplifier build-in
- Six-zone outputs
- 6 emergency and 6 business triggers

The LBB 1990/00 Voice Alarm Controller unit is the heart of the Plena Voice Alarm System. It is the basis of the Plena Voice Alarm System, and has all the essential functionality for compliance with the EN 54-16 and EN 60849 standards, including full system supervision, loudspeaker line impedance supervision, a supervised emergency microphone on the front panel and a supervised message manager.

The messages can be merged to allow even more flexible use of pre-recorded announcements and evacuation messages. The controller can be used as a stand-alone system with up to six zones, or expanded to up to 120 zones using additional six-zone routers. Up to eight call stations can be connected. Interconnections are made using standard RJ45 connectors and shielded CAT-5 cable.

A built-in 240 W amplifier provides the power for the emergency call channel and BGM. Additional amplifiers can be added to provide two-channel operation. All amplifiers are supervised. The audio output uses standard analog audio 100 V line switching for full compatibility with the product family of public address equipment and Bosch EVAC-compliant loudspeakers. The system is configured using DIP switches for basic functionality and a PC for more advanced functions.

Functions

The controller has two BGM source inputs and a mic/line input with configurable priority, speech filter, phantom power and selectable VOX activation. A total of 16 priority levels can be specified for microphone, call stations and trigger inputs for optimum system flexibility.

The powerful 240 W output section has six transformer-isolated 100 V constant-voltage outputs for driving 100 V loudspeakers in six separate zones. The 100 V-technique reduces line losses on longer distances and provides easy parallel connection of multiple loudspeakers. All zones may be individually selected from the front panel, and the BGM output level in each zone can be individually set in six steps. The controller supports A/B wiring.

The configuration software is provided on www.boschsecurity.com from the software download section of the Plena Voice Alarm System controller. The software package also includes many useful programs, such as; MP3-ripping software, a sample-rate converter, various audio and visual tools, and free, MP3-coded music.

The amplifier output is also available as a separate output on 100 V and 70 V. A separate 100 V call-only output provides addressing for an area where BGM is not required but where priority announcements are. Six configurable volume-override output contacts are available for overriding local volume controls during priority calls. Both four-wire and three-wire schemes are supported. An LED meter monitors the output.

Up to 255 messages can be stored in the internal 16 MB flash ROM, without a need for battery backup. Each message can have any length within the total available capacity. Messages and configurations are uploaded from a PC via USB 2 into the memory, after which the unit operates without a PC connection. The standard WAV-format is used for the messages, and sample rates of 8 kHz up to 24 kHz with 16-bit word length (linear PCM) are supported. This gives up to 17 minutes of recording time with CD-quality signal-to-noise ratio.

The unit has 12 contact trigger inputs for business and emergency (EMG) calls. Each can be configured for a message consisting of a sequence of up to eight wave files. In this way some wave files may be used in various combinations with other messages, optimizing flexibility and the amount of storage space used. Multiple messages can be merged to form one integrated message. A zone selection, together with this sequence can be configured for each trigger input.

Controls and indicators

Front
- LED power meter
- 13 system fault LEDs
- Two fault state buttons
- Two emergency state buttons
- Six EMG zone status LED pairs
- Six EMG zone select buttons
- Six BGM zone select LEDs
- Six BGM zone select buttons
- Six BGM zone volume control knobs
- Two BGM source status LEDs
- Three knobs for BGM volume, treble, and bass levels
- All-call button
- Indicator test button
- EMG state button
- Alert message button

Back
- Three service settings DIP switches
- Calibration switch
- Four system configuration DIP switches

- Mains voltage selector
- Power switch
- Power cord socket
- Mic/line level switch
- Three DIP switches for VOX, speech, phantom power
- Microphone volume control knob
- Digital message volume control screw
- Monitoring speaker volume control knob

Interconnections
Front
- Microphone socket

Back
- 12 loudspeaker outputs
- External amplifier input
- Amplifier output (on 100 V)
- Backup power input
- Call output
- Six volume override outputs
- Three status outputs
- 12 trigger inputs
- 24 VDC output
- Two call station connectors (redundant)
- USB 2 connector
- Two DE-9 connectors (reserved)
- External amplifier output
- Line output connectors
- Two BGM inputs
- PC call station input (reserved)
- Two RC station connectors (redundant)
- Connector to LBB 1992/00 (router)

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	
Poland	CNBOP	

Installation/configuration notes

LBB 1990/00 rear view

Parts included

Quantity	Component
1	LBB 1990/00 Voice Alarm Controller
1	Power cord
1	Set of 19" mounting brackets
1	Safety Instructions
1	USB cable

Technical specifications

Electrical

Mains power supply	
Voltage	230/115VAC, ±15%, 50/60 Hz
Current inrush	8 A
Max power consumption	600 VA
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	14 A
Performance	
Output power (rms/maximum)	240 W / 360 W
Power reduction on backup power	-1 dB
Frequency response	60 Hz to 18 kHz (+1/-3 dB at -10 dB ref. rated output)
Distortion	<1% at rated output power, 1 kHz
Bass control	-8/+8 dB at 100 Hz
Treble control	-8/+8 dB at 10 kHz
Mic/line input	1 x
Connector	XLR, 6.3 mm jack
Sensitivity	1 mV (mic), 1 V (line)
Impedance	>1 kohm (mic); >5 kohm (line)
S/N (flat at max volume)	>63 dB (mic); >70 dB (line)
S/N (flat at min volme/muted)	>75 dB
CMRR	>40 dB (50 Hz – 20 kHz)
Headroom	>25 dB
Speech filter	-3 dB at 315 Hz, high-pass, 6 dB/oct
Phantom power supply	12 V (mic mode only)
VOX trigger level	-20 dB (100 μV mic / 100 mV line) or via input contact
Limiter	Automatic
Line input	(BGM and PC call station)
Connector	Cinch, stereo converted to mono, unbalanced
Sensitivity	200 mV
Impedance	22 kohm
S/N (flat at max volume)	>70 dB

S/N (flat at min volume/ muted)	>75 dB
Headroom	>25 dB
Trigger Inputs	12 x (6 EMG, 6 business)
Connectors	MC1,5 / 14-ST-3,5
Activation	Programmable
Supervision	On EMG inputs, programmable
Supervision method	Series / parallel resistor
100 V input	
Connector	MSTB 2,5 /16-ST
Power handling capacity	1000 W
Tape output	1 x
Connector	Cinch, 2 x mono
Nominal level	350 mV
Impedance	<1 kohm
Loudspeaker outputs	
Connectors	MSTB 2,5 /16-ST, floating
100 V output	700 W rated per zone
Volume override types	3-wire, 4-wire (24 V), 4-wire fail-safe
BGM zone output Attenuation	70 / 50 /35 /25 / 18 / 13 V for 0 / -3 / -6 / -9 / -12 / -15 dB 120 / 60 / 30 / 15 / 8 /4 W
Output Contacts	
Connector Type	MC 1,5/14-ST-3,5
Rating	250 V, 7A, voltage free
Emergency active relay	NO / COM / NC
Call active relay	NO / COM / NC
Fault relay	NO / COM / NC normally energized (failsafe)
General purpose relays	NO / COM

Power consumption

Mains operation	
Max power	550 W
-3dB	440 W
-6dB	340 W
Pilot tone*	136 W
Idle	60 W
24 VDC operation	
Max power	14.0 A (336 W)
-3 dB	12.5 A (300 W)
-6 dB	9.5 A (228 W)
Pilot tone*	2.5 A (60 W)
Idle	0.9 A (22 W)

* 20 kHz -20dB with maximum loudspeaker load

Messages

Data format	WAV-file, 16-bit PCM, mono
Supported sample rates (fs)	24 / 22.05 / 16 / 12 / 11.025 / 8 kHz
Frequency response	
at fs=24kHz	100 Hz to 11 kHz (+1/-3 dB)
at fs=22.05kHz	100 Hz to 10 kHz (+1/-3 dB)
at fs=16kHz	100 Hz to 7.3 kHz (+1/-3 dB)
at fs=12kHz	100 Hz to 5.5 kHz (+1/-3 dB)
at fs=11.025kHz	100 Hz to 5 kHz (+1/-3 dB)
at fs=8kHz	100 Hz to 3.6 kHz (+1/-3 dB)
Distortion	<0.1% at 1 kHz
S/N (flat at max volume)	>80 dB
Memory capacity	16 MB Flash ROM
Recording / playback time	1000 seconds at fs = 8 kHz 333 seconds at fs = 24 kHz
Number of messages	255 max
Supervision Flash ROM	Continuous checksum control
Supervision DAC	1 Hz pilot tone
Data retention time	>10 years

Mechanical

Dimensions (H x W x D)	144 x 430 x 370 mm (19" wide, 3U high)
Weight	Approx. 21.17 kg
Mounting	19”rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%
Acoustic noise level of fan	<48 dB SPL at 1 m (max output)

Ordering information

LBB 1990/00 Plena Voice Alarm Controller
Fully supervised main control unit for Plena Voice Alarm System applications, built-in 240 W amplifier.
Order number **LBB1990/00**

LBB 1992/00 Plena Voice Alarm Router

Features

- Expand the Plena Voice Alarm System with six zones
- EN 54-16 certified
- 12 additional input contacts
- Six volume override output contacts
- Supervision within the Plena Voice Alarm System

The LBB 1992/00 Voice Alarm Router is an expansion unit that can add six zones and 12 input contacts to the Plena Voice Alarm System. It can use the built-in amplifier on the LBB 1990/00 Plena Voice Alarm System Controller, and provides inputs and outputs for one or two amplifiers in a multi-amplifier one or two-channel system.

It provides dual channel operation for calls and BGM simultaneously to a maximum of six different zones, using two amplifiers. Additionally, single channel operation is possible with only one amplifier.

Multiple routers can also share one amplifier, including the internal amplifier on the controller unit. It is possible to use any number of amplifiers from one up to the number of routers used. The controller supports A/B wiring.

Functions

The LBB 1992/00 has a set of relays for zone-switching the power amplifier output(s) to different loudspeaker groups. Each zone can be switched between:
- The call channel (call-station selection, all-call microphone, or emergency activation)
- The BGM channel (front panel selection)
- Off

Volume override relay contacts are provided for each zone separately for overriding local loudspeaker volume controls. This ensures that priority messages go through with a given volume, even though the local volume controls may be set to a low volume level for background music, for example. Both three-wire and four-wire override schemes are supported. A call or a triggered input will activate these contacts for the appropriate zones, together with an additional voltage-free contact (call-active) for control purposes.

An overload protected 24 VDC output provides power for driving external relays, making an external power supply unnecessary. The master output channel, or one of the input channels, can be selected to be monitored with headphone connector and LED meter.

Controls and indicators

Front
- Meter (LED's for -20, -6, 0 dB and Power ON)
- Eight system fault LEDs
- 12 loudspeaker line fault LEDs
- Six EMG call-zone selection buttons
- 12 EMG call-zone status LEDs
- Six BMG zone selector buttons
- Six BMG zone status LEDs

Back
- Two DIP switches
- Unit ID rotary control
- Mains voltage selector
- Power switch
- Mains socket

Interconnections

Back
- 12 loudspeaker outputs
- Two external amp inputs
- Call output
- Six volume override outputs
- 12 trigger inputs
- RS-232 connector
- Two system interlinks
- Two external amp outputs (XLR/balanced)
- Power amp fault output
- 24 VDC power output
- 24 VDC power input
- Two extra trigger outputs
- Earth connection screw

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	
Poland	CNBOP	

Installation/configuration notes

LBB 1992/00 rear view

Parts included

Quantity	Component
1	LBB 1992/00 Voice Alarm Router
1	Power cord
1	Set of 19” mounting brackets
1	Safety Instructions
1	XLR cable
1	Ethernet cable

Technical specifications

Electrical

Mains power supply	
Voltage	230/115 VAC, ±10%, 50/60 Hz
Inrush current	1.5 A @ 230 VAC / 3 A @ 115 VAC
Max power consumption	50 VA
Idle / max load* current	0.2 A / 0.3 A
Battery power supply	
Voltage	24 VDC, +15% / -15%
Current max	1.8 A
Typical / max load* current	0.51 A / 1.5 A
Trigger Inputs	12 x (6 EMG, 6 business)
Connectors	MC1,5 / 14-ST-3,5
Activation	Programmable
Supervision	On EMG inputs, programmable
Supervision method	Series / parallel resistor
100 V input	
Connector	MSTB 2,5 /16-ST
Amp 1	100 V / 70 V / 0 V
Amp 2	100 V / 0 V
Power handling capacity	1000 W
Loudspeaker outputs	12 x (2 x 6 zones)
Connectors	MSTB 2,5 /16-ST, floating
100 V output	700 W rated per zone
Volume override types	3-wire, 4-wire (24 V), 4-wire failsafe
Output Contacts	
Connector	MC 1,5/14-ST-3,5
Rating	250 V, 7A, voltage free
General purpose relays (2x)	NO / COM

* Maximum load means maximum load on 24 VDC, and indicator test.

Mechanical

Dimensions (H x W x D)	88 x 430 x 260 mm (19" wide, 2U high)
Weight	Approx. 3 kg
Mounting	Standalone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1992/00 Plena Voice Alarm Router
An expansion unit for adding six zones and 12 input contacts to the Plena Voice Alarm System.
Order number **LBB1992/00**

LBB 1956/00 Plena Voice Alarm Call Station

Features

- Stylish six-zone call station for the Plena Voice Alarm System
- Six zone selection keys, all-call key and momentary PTT-key for calls
- Selectable gain, speech filter, limiter, and output level for improved intelligibility
- LED indications for zone selection, fault, and emergency state
- Call station extension provides seven additional zone and zone group keys

The LBB 1956/00 call station is a stylish, high-quality call station with a stable metal base design, a flexible microphone stem and a unidirectional condenser microphone. It can make calls to selected zones (one to six and all-call) in a public address system built with the Plena Voice Alarm System. In addition to tabletop use, the special design allows it to be neatly flush-mounted in desktops. The LBB 1957/00 Plena Voice Alarm System Keypad is an extension adding seven additional keys.

Functions

Each call station supports six zone selections. The number of selectable zones or zone groups can be increased by connecting call station keypads (LBB 1957/00). Up to eight keypads can be added with each keypad adding seven zone or zone-group keys.

This call station features selectable gain, a selectable speech filter, and a limiter for improved intelligibility. The call station has a balanced line level output, making it possible to position it up to 1000 meters from the controller, using CAT-5 extension cables. With shielded cable, the call station can also be used in an EMC level 5 (heavy industry) environment.

DIP switches at the base of the call station select different microphone gain levels, the call station ID, and the speech filter. A service accessible rotary control provides microphone level attenuation. LEDs on the call station show which zones have been selected. Three additional LEDs give visible feedback on the active state of the microphone and the system. Green flashing means standby (chime is sounding). Green indicates microphone active. Amber indicates that the system has detected a fault, and red indicates that the system is in the emergency state.

Controls and indicators

- Four status LEDs
- PTT-key
- PTT status LED
- Six zone selection keys
- Six zone selection LEDs
- All-call key
- Eight DIP switches
- Rotary volume control

Interconnections

- Two RJ45 jacks
- 24 VDC input
- Keypad connector

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	**Certification**	
Europe	CE	Declaration of Conformity

Parts included

Quantity	Components
1	LBB 1956/00 Call Station
1	Cable terminated with a lockable CAT-5 connector

Technical specifications

Electrical

Power Supply	
Voltage range	24 VDC supplied by LBB 1990/00 (or 18 to 24 VDC or VAC external power supply)
Current consumption	<30 mA (plus <15 mA per keypad)
Performance	
Nominal sensitivity	85 dB SPL (gain preset 0 dB)
Nominal output level	700 mV
Input sound level (max)	110 dB SPL
Gain preset	+6 / 0 / -15 dB
Limiter threshold	2 V
Compression ratio limiter	1:20

Distortion	<0.6% (maximum input)
Input noise level (equiv.)	25 dB SPLA
Frequency response	100 Hz to 16 kHz
Speech filter	-3dB at 315 Hz, high-pass, 6 dB/oct
Output impedance	200 ohm
Selections	
Chimes	Any wave file
Priorities	7

Mechanical

Base dimensions	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg
Mounting	Standalone
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	5 m (16.4 ft)

Environmental

Operating temperature	-10 ºC to +45 ºC (14 ºF to +113 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1956/00 Plena Voice Alarm Call Station
Flexible microphone stem and unidirectional condenser microphone, metal base design, can make calls to selected zones (one to six and all-call).
Order number **LBB1956/00**

LBB 1957/00 Plena Voice Alarm Keypad

Plena
BOSCH

Features

- Seven zone selection keys
- LED indications for zone selection
- Up to eight keypads can be connected together

The LBB 1957/00 Call Station Keypad is an extension to the LBB 1956/00 Plena Voice Alarm System Call Station that adds seven additional zone-select keys. It has the same stable metal base as the call station. In addition to tabletop use, the special design allows it to be neatly flush-mounted in desktops.

Functions

Each call station supports six zone selections. Connecting one of these keypads, adds seven zones or zone groups that can be selected. Up to eight keypads can be added to an LBB 1956/00 call station. LEDs on the keypad indicate the active zones.

Controls and indicators

- Seven zone selection keys
- Seven zone selection LEDs
- Eight DIP switches

Interconnections

- Two RJ45 jacks
- 24 VDC input
- Keypad connector

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification	
Europe	CE	Declaration of Conformity

Parts included

Quantity	Components
1	LBB 1957/00 Call Station Keypad

Technical specifications

Electrical

Power Supply	
Voltage range	24 VDC supplied by LBB 1956/00
Current consumption	<15 mA

Mechanical

Base dimensions	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg
Mounting	Bracket coupled with LBB 1956/00 or other LBB 1957/00
Color	Charcoal with silver

Environmental

Operating temperature	-10 °C to +45 °C (14 °F to +113 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 1957/00 Plena Voice Alarm Keypad
An extension to the LBB 1956/00 Plena Voice Alarm System Call Station that adds seven additional zone-select keys.
Order number **LBB1957/00**

LBB 1995/00 Plena Voice Alarm System Fireman's panel

Features

- Remote control of the Plena Voice Alarm System
- EN 54-16 certified
- Emergency (EMG) microphone
- EMG state and fault indicators
- Call monitoring loudspeaker

The Plena Voice Alarm System remote control panels allow the system to be controlled remotely from one or two remote locations. There are five models available:

- The fireman's panel, which has oversized, illuminated controls and an all-call function
- The main RC unit, which duplicates the front panel of the Plena Voice Alarm System Controller
- The RC extension, which duplicates the front panel of the router
- The main RC kit
- The RC extension kit

The kits are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators.

Functions

The LBB 1995/00 Fireman’s panel is a remote control that has specialized buttons and indicators for firemen. The remote control has no zone selection, as the standard RC has, but large backlit buttons.

It is possible to enter or acknowledge the emergency state, and acknowledge and reset the fault state. Emergency or alert messages can be started, and live calls can be made.

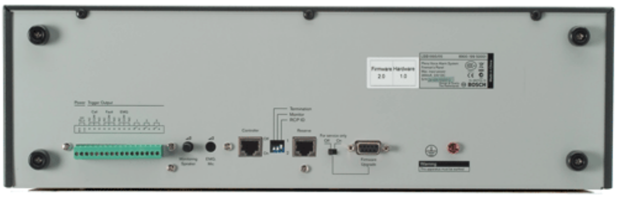
An LED meter shows the presence and level of the calls that are active in the system. The fault indicators show detailed information of a fault in the system. Connection to the Plena Voice Alarm System is via standard, shielded CAT-5 cable and RJ45 connectors. The included rack mounting brackets can also be used to mount the units to a rear wall with spacing for cables, and even to a flat surface above or below the unit.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	
Poland	CNBOP	

Installation/configuration notes



LBB 1995/00 rear view

Parts included

Quantity	Component
1	LBB 1995/00 Fireman's panel
1	Set of 19” mounting brackets
1	EMG microphone and cable
1	EMG mic mounting clip
1	1 m CAT-5 cable

Technical specifications

Electrical*

Power supply	
Voltage	24 VDC, +20% / -10%
Current typical	100 mA
Current max (indicator test)	250 mA
Priority relay contacts	30 V, 1 A
Emergency relay contacts	30 V, 1 A

* Technical performance data acc. to IEC 60268-3

Mechanical

Dimensions	134 x 430 x 90 mm (19" wide, 3U high)
Weight	Approx. 3 kg
Mounting	19” rack or wall
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1995/00 Plena Voice Alarm System Fireman's panel
Voice alarm system Fireman's panel, an all-call EVAC remote control with microphone.
Order number **LBB1995/00**

LBB 1996/00 Plena Voice Alarm Remote Control

Features

- Remote control of the Plena Voice Alarm System
- EN 54-16 certified and EN 60849 compliant
- Emergency (EMG) microphone and background (BGM) zone selections
- EMG state and fault indicators
- Call monitoring loudspeaker

The Plena Voice Alarm System remote control panels allow the system to be controlled remotely from one or two remote locations. There are five models available:

- The fireman's panel, which has oversized, illuminated controls and an all-call function
- The main RC unit, which duplicates the front panel of the Plena Voice Alarm System Controller
- The RC extension, which duplicates the front panel of the router
- The main RC kit
- The RC extension kit

The kits are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators.

Functions

The LBB 1996/00 remote control is an exact duplicate of the control panel on the LBB 1990/00 Plena Voice Alarm System Controller. The LBB 1996/00 provides all EVAC control from one or two locations, such as at entrance points. The remote control has BGM and emergency-call zone selection without source, volume or tone control.

It is possible to enter or acknowledge the emergency state, and acknowledge and reset the fault state. Emergency or alert messages can be started, and live calls can be made.

An LED meter shows the presence and level of the calls that are running in the system. The fault indicators reflect any faults present in the system. The unit connects to the Plena Voice Alarm System via standard shielded CAT 5 cable. The included rack mounting brackets can also mount the unit on a wall with spacing for cables at the back, as well as to a horizontal surface above or below the unit.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	
Poland	CNBOP	

Installation/configuration notes

LBB 1996/00 Rear view

Parts included

Quantity	Component
1	LBB 1996/00 Remote Control
1	Set of 19” mounting brackets
1	EMG microphone and cable
1	EMG microphone mounting clip
1	1 m CAT 5 cable

Technical specifications

Electrical

Power supply	
Voltage	24 VDC, +15% / -15%
Current typical	100 mA
Current max (indicator test)	250 mA
Relay contacts	30 V, 1 A

Mechanical

Dimensions (H x W x D)	134 x 430 x 90 mm (19" wide, 3U high)
Weight	Approx. 3 kg
Mounting	19” rack or wall
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1996/00 Plena Voice Alarm Remote Control
Voice alarm remote-control, a six-zone Plena Voice Alarm System remote control with microphone.
Order number **LBB1996/00**

LBB 1997/00 Plena Voice Alarm System Remote Control Extension

Features

- Remote control of the Plena Voice Alarm System routers
- EN 54-16 certified and EN 60849 compliant
- Emergency (EMG) and background music (BGM) zone selections
- EMG state and fault indicators
- One extension per router

The Plena Voice Alarm System remote control panels allow the system to be controlled remotely from one or two remote locations. There are five models available:

- The fireman's panel, which has oversized, illuminated controls and an all-call function
- The main RC unit, which duplicates the front panel of the Plena Voice Alarm System Controller
- The RC extension, which duplicates the front panel of the router
- The main RC kit
- The RC extension kit

The kits are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators.

Functions

The LBB 1997/00 extension duplicates the LBB 1992/00 Plena Voice Alarm System router front panel. One extension is needed per router, but not all routers need to have a remote control.

An LED meter shows the presence and level of the calls that are running in the system. The fault indicators show detailed information of any faults present in the system. The unit connects to the Plena Voice Alarm System via standard shielded CAT 5 cable. The included rack mounting brackets can also mount the unit on a wall with spacing for cables at the back, as well as to a horizontal surface above or below the unit.

One or more extensions need to be connected to a voice alarm RC or voice alarm RC kit.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 54-16 / EN 60849

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	
Poland	CNBOP	

Installation/configuration notes

LBB 1997/00 Rear view

Parts included

Quantity	Component
1	LBB 1997/00 Remote Control Extension
1	Set of 19” mounting brackets
1	1 m CAT 5 cable

Technical specifications

Electrical*

Power supply	
Voltage	24 VDC, +15% / -15%
Current typical	50 mA
Current max (indicator test)	200 mA (indicator test)
Relay contacts	30 V, 1 A

* Technical performance data according to IEC 60268-3

Mechanical

Dimensions (H x W x D)	88 x 430 x 90 mm (19 in wide, 2U high)
Weight	Approx. 2 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1997/00 Plena Voice Alarm System Remote Control Extension
A six-zone Plena Voice Alarm System router remote control.
Order number **LBB1997/00**

LBB 1998/00 Plena Voice Alarm System Remote Kit

Features

- Kit to create a remote control of the Voice Alarm Controller
- With emergency (EMG) microphone
- EMG state and fault indicators
- Control outputs for EMG and Fault state
- EN 60849 compliant

The Plena voice alarm remote control panels allow the system to be controlled remotely from one or two remote locations. There are five models available:

- The fireman's panel, which has oversized, illuminated controls and an all-call function
- The main RC unit, which duplicates the front panel of the Voice Alarm Controller
- The RC extension, which duplicates the front panel of the router
- The main RC kit
- The RC extension kit

The kits are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators.

Functions

The kit is a functional match to the LBB 1996, which duplicates the voice alarm controller. All controls and indicators are available on screw terminals. The remote control kit has BGM zone selection without source selection, volume or tone control.

These kits make it easy to build a custom control unit. The electrical connections are printed on the front and rear panels. A 24 VDC output is available to supply power to external LEDs and relays, so an external power supply is not required for that purpose.

The remote control kit functions on an external 24 V power supply. The interconnecting CAT 5 (shielded) cable provides power for the RC extension and extension kit.

After connecting all indicators the following functions are available:

- The LED meter shows the presence and level of the calls that are running in the system
- The fault indicators show detailed information of a fault in the system

The connection to the Bosch Voice Alarm System is via standard, shielded CAT 5 cable and RJ45 connectors. The included rack mounting brackets can also be used to mount the units to a rear wall with spacing for cables, and even to a flat surface above or below the units.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
Emergency	acc. to EN 60849

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes

LBB 1998/00 rear view

Parts included

Quantity	Component
1	LBB 1998/00 Plena Voice Alarm System Remote Kit
1	Set of 19” mounting brackets
1	EMG microphone and cable
1	EMG microphone mounting clip
1	1 m CAT 5 cable

Technical specifications

Electrical*

Power supply	
Voltage	24 VDC, -15% / +15%
Current typical	100 mA
Current max (indicator test)	250 mA
Priority relay contacts	30 V, 1 A
Emergency relay contacts	30 V, 1 A
DC supply output	24 V, 200 mA (max)

LEDs / lamps	
On external power	50 V (200 mA max)
On internal power	5 mA max
Type	Open collector pull down

* Technical performance data acc. to IEC 60268-3

Mechanical

Dimensions	134 x 430 x 90 mm (19" wide, 3U high)
Weight	Approx. 3 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1998/00 Plena Voice Alarm System Remote Kit
Voice alarm system remote-kit, a kit for a six-zone voice alarm controller remote control.
Order number **LBB1998/00**

LBB 1999/00 Plena Voice Alarm System Remote Control Extension Kit

Features

- Remote control of voice alarm routers
- Connectors with screw terminals
- Emergency (EMG) and background music (BGM) zone selections
- Open collector terminals for LEDs or lamps
- EN 60849 compliant

The Plena voice alarm remote control panels allow the system to be controlled remotely from one or two remote locations. There are five models available:

- The fireman's panel, which has oversized, illuminated controls and an all-call function
- The main RC unit, which duplicates the front panel of the Voice Alarm Controller
- The RC extension, which duplicates the front panel of the router
- The main RC kit
- The RC extension kit

The kits are a functional match to the remote control and the RC extension, with connectors on the front panel instead of controls and indicators.

Functions

The kit is a functional match to the LBB 1997/00, which duplicates the voice alarm router. All controls and indicators are available on screw terminals.

These kits make it easy to build a custom control unit. The electrical connections are printed on the front and rear panels. A 24 VDC output is available to supply power to external LEDs and relays, so an external power supply is not required for that purpose.

The remote control kit functions on an external 24 V power supply. The interconnecting CAT 5 (shielded) cable provides power for the RC extension and extension kit.

After connecting all indicators the following functions are available:

- The LED meter shows the presence and level of the calls that are running in the system
- The fault indicators show detailed information of a fault in the system

The connection to the Bosch Voice Alarm System is via standard, shielded CAT-5 cable and RJ45 connectors. The included rack mounting brackets can also be used to mount the units to a rear wall with spacing for cables, and even to a flat surface above or below the units.

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 50130-4
Emission	acc. to EN 55103-1
EVAC	acc. to EN 60849

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes

LBB 1999/00 rear view

Parts included

Quantity	Component
1	LBB 1999/00 Plena Voice Alarm System Remote Control Extension
1	Set of 19” mounting brackets
1	1 m CAT-5 cable

Technical specifications

Electrical*

Power supply	
Voltage	24 VDC, +15% / -15%
Current typical	50 mA
Current max (indicator test)	200 mA
Priority relay contacts	30 V, 1 A
Emergency relay contacts	30 V, 1 A
DC supply output	24 V, 200 mA (max)
LEDs / lamps	
On external power	50 V (200 mA max)
On internal power	5 mA max
Type	Open collector pull down

* Technical performance data according to IEC 60268-3

Mechanical

Dimensions (H x W x D)	88 x 430 x 90 mm (19 in wide, 2U high)
Weight	Approx. 2 kg
Mounting	Stand-alone, 19” rack
Color	Charcoal

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1999/00 Plena Voice Alarm System Remote Control Extension Kit
Voice alarm system remote-control extension-kit, a kit for a six-zone voice alarm router remote control.
Order number **LBB1999/00**

PRS-1AIP1 IP Audio Interface

IP Audio Interface
BOSCH
Reset
Status

Features

- All-in-one solution for audio transport on IP-networks
- Supervised control inputs and outputs
- Supports re-broadcasting
- Configurable audio delay on the output for loudspeaker alignment
- Easy to install and configure via standard web-browser

The PRS-1AIP1 is a universal, IP-based audio device supporting VoIP and Audio over IP applications. It is an ideal solution for bridging audio and contact closures over long distance LAN and WAN networks, e.g. in shopping malls, tunnels, in and between railway stations. It extends and interfaces to Praesideo and non-network based traditional public address systems without the need for a PC during operation.
The unit has analog audio inputs and outputs for easy interfacing with optional pilot-tone supervision for emergency sound purposes. One audio input can be switched to microphone sensitivity with built-in microphone supervision. Also, the control inputs offer cable and connection supervision.
Control inputs and outputs can be used to set up an audio connection to start a remote call, but also to pass remote fault events to the system controller.

Functions

Audio

Multiple audio formats are supported: single channel, full duplex 16-bit PCM or G.711 for very low latency, and two-channel send or receive MP3 for high quality audio with various sample rates and compression settings.
The unit provides two balanced line inputs and two balanced line outputs. One of the inputs can be configured as balanced microphone input with a phantom power supply for electret / condenser microphones and microphone connection supervision. The output level is configurable.
Audio connection supervision using a 20 kHz pilot tone is supported, with detection on the audio input of the transmitter and regeneration on the audio output of the receiver.
A configurable audio delay can be used to artificially delay the playback of audio for loudspeaker alignment, e.g. in tunnels.

Audio Routing

Audio signals can be routed in uni-cast to up to 16 receivers, preconfigured or on activation of control inputs. Receivers are able to re-broadcast the incoming audio stream to other receivers. In case the interfaces are on the same LAN also broadcast is supported.
In PCM and G.711 (uLaw and aLaw) full duplex audio interfacing between two units is possible.

Control inputs and outputs

The unit has eight control inputs with configurable supervision on open and/or short-circuits. Eight control outputs have dry relay contacts. Control inputs can be routed to control outputs for remote actions or to pass on fault information between audio transmitter and receiver, in both directions. Control inputs can also be configured to change the audio routing.
An additional dry relay contact is provided for fault indication of the unit, including a high temperature fault situation.

Network Interfaces

The unit interfaces to 10 and 100 Mbit Ethernet networks and announces its IP-address that was given by a DHCP server. It can also search the network for a free IP-address or can be given a static IP-address. A second Ethernet connection is available to support network redundancy.
An RS 232 interface is build-in to communicate additional serial data over the IP network.

Power Supplies

Two power supply connections are provided as main input and backup input with supervision of both supplies.

Controls and Indicators (front)

- Reset button, recessed
- Two status indicator LEDs for network
- Eight status LEDs for control inputs

Interconnections (rear)

- Eight control inputs on Euro-connector
- Eight control outputs on Euro-connector
- Fault relay output on Euro-connector
- Two balanced audio inputs on Euro-connector (one line input, one line / microphone input)
- Two balanced audio outputs on Euro-connector
- Two Ethernet connections on RJ45
- RS 232 on Sub-D
- RS 485 on Euro-connector
- Main power supply on jack
- Backup power supply on Euro-connector

Certifications and approvals

Electromagnetic compatibility	EN55011:2009 (Limit Class: B) EN50130-4:1995 + A1:1998 + A2:2003
Electrical safety	IEC60065 (CB-scheme)
Approvals	CE marking EN54-16 (0560 - CPD - 10219002/AA/04)

Region	Certification
Europe	CE
	CE

Region	Certification
	CE
	CE DOP
	CPD

Parts included

Quantity	Component
1	PRS-1AIP1 IP Audio Interface
1	Power supply
1	Set of connectors

Technical specifications

Electrical

External power supply 1	18 to 56 VDC
External power supply 2	18 to 56 VDC
Power consumption	8 W max
Microphone input (Audio input 1)	
Sensitivity	-48.5 to -26 dBV
Impedance	1360 ohm
Frequency response	100 Hz to 15 kHz
S/N	>60 dB
Supervision detection	Electret: 0.4 – 5 mA Dynamic: 120 – 1300 ohm
Line Inputs (Audio input 1 and 2)	
Sensitivity	-16.5 to +6 dBV
Impedance	22 kohm
Frequency response	20 Hz to 15 kHz
S/N	>70 dB
Pilot tone detection level (Input 2 only)	-30 dBV
Line outputs (Audio output 1 and 2)	
Level	6 dBV max
Pilot tone level (Output 2 only)	-20 dBV (20 kHz)
Audio formats	
MPEG 1-layer 3 (MP3)	32, 44.1 and 48 kHz sample rate
	Encoding up to 192 kbps VBR
	Decoding up to 320 kbps (Stereo)
MPEG 1-layer 2	16, 22.05 and 24 kHz sample rate
G.711	uLaw, aLaw at 8, 24 or 32 kHz sample rate
PCM	16-bit at 8, 24 or 32 kHz sample rate
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control / fault outputs	8 x / 1 x
Connectors	Removable screw terminals
Operation	Make contact (SPST, voltage free)
Rating	24 V, 0.5 A
Ethernet 1 and 2	
Connector	Dual RJ45, DTE-pinout
Standard	802.3i / 802.3u
Speed	10 / 100 Mbps, auto-negotiation
Flow	Full / half-duplex, auto-negotiation
Protocol	TCP/IP, UDP, RTP, SIP, IGMP, DHCP, SNMP
RS 232 / RS 485	
Connector RS 232	9-pin Sub-D male, DTE-pinout
Connector RS 485	Removable screw terminals
Pinout	300 to 115.200 Baud
Setting (default)	9600, 8, N, 1

Mechanical

Dimensions (H x W x D)	216 x 38 x 125 mm(8.5 x 1.5 x 4.92 in) (half 19” wide)
Weight	0.7 kg (1.5 lb)
Mounting	Stand-alone or in 19”-rack with additional frame
Color	Silver with Charcoal

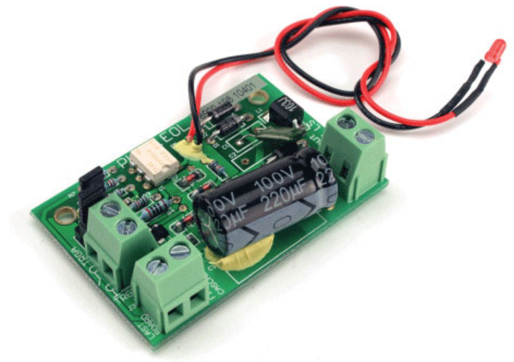
Environmental

Operating temperature	-5 ºC to +50 ºC (+23 ºF to +122 ºF)
Start-up temperature	0 ºC to +50 ºC (+32 ºF to +122 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15 to 90 %
Air pressure	600 to 1100 hPa

Ordering information

PRS-1AIP1 IP Audio Interface
Compact bi-directional 1 or 2 channel interface for supervised audio with RS232/485 tunnel and GPIO.
Order number **PRS-1AIP1**

PLN-1EOL Plena End-of-Line Boards



Features

- Pilot tone detection on 100 V loudspeaker lines
- Voltage free switch 200 V 1 A and LED indications of pilot tone
- Daisy chainable for monitoring multiple zones on a single input contact
- Fits on built-in mounts on selected Bosch loudspeakers
- EN 54-16 certified

A Plena end-of-line board is a PCB designed to detect the 20 kHz pilot tone generated by a supervised public address or voice alarm system. It activates a voltage free switch in the presence of a 20 kHz signal (pilot tone) above 5 V, as well as an LED for easy visual confirmation of operation.

Functions

Plena end-of-line boards monitor the presence of a pilot tone on a loudspeaker line. The board connects at the end of a loudspeaker line and detects the 20 kHz pilot tone signal. This signal is always present on the line: when back ground music (BGM) is playing, when a call is in progress, and when no signal is present. The 20 kHz tone is inaudible and at a very low level (-20dB). When the pilot tone signal is present, an LED lights up, and a contact on the board is closed. When the pilot tone fails, the contact opens, and the LED goes off. If mounted at the end of the loudspeaker line, this applies to the integrity of the whole line. Presence of the pilot tone signal does not depend on the number of loudspeakers on the line, the load on the line, or the line capacitance. The contact can be connected to a PA system, such as the Bosch Voice Alarm System, to detect and report faults on a loudspeaker line.

Several EOL boards can be daisy-chained to a single fault input. This allows a loudspeaker line with several branches to be monitored.

Since the background music also includes a 20 kHz pilot tone signal, there is no need to interrupt background music.

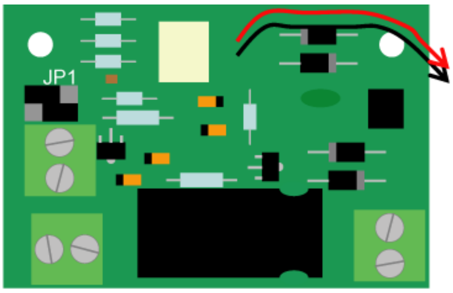
Certifications and approvals

Immunity	acc. to EN 50130-4
Emergency	acc. to EN 54-16 * / EN 60849 *

* When used with the Voice Alarm System and installed according to the *Installation and User Instructions*

Region	Certification	
Europe	CE	Declaration of Conformity
	CPD	
	CPD	

Installation/configuration notes

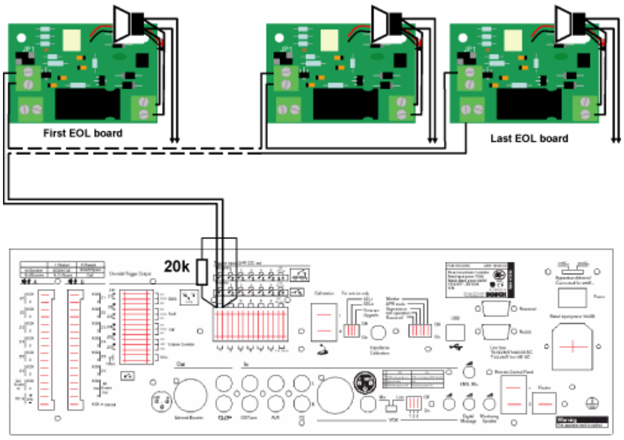


JP1 configuration for trigger output configuration

Using a daisy chain configuration it is possible to:

- Supervise several loudspeaker lines with only one fault input.
- Supervise several branches of a loudspeaker line with just one fault input

When connecting more than one EOL board on a single trigger input, and to supervise the boards, a 20 kohm or 22 kohm resistor should be connected in parallel with the trigger input. The boards are connected as shown in the following drawing.



Multiple boards on a single trigger input

Parts included

Quantity	Components
6	PLN-1EOL Plena End of Line Board
1	Application note

Technical specifications

Electrical

Input	1 x
Voltage	100 V loudspeaker line
Detection threshold	5 to 50 V @ 20 kHz
Output	2 x
Indicator	Red LED
Contact	Normally closed fail safe Bipolar MOS switch 250 Vp 190 mA max
Detection threshold*	5 to 50 V @ 20 kHz (contact and LED)

* LED threshold and switch threshold may be slightly different.

Mechanical

Dimensions (H x W x D)	17 x 60 x 40 mm
Mounting	WLS II
Weight	Approx. 40 g

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

PLN-1EOL Plena End-of-Line Boards
End-of-line supervision boards (set of 6 pieces).
Order number **PLN-1EOL**

Digital PA and Emergency Sound

3

Praesideo System 144

Praesideo Peripherals 191

Praesideo Accessories 203

Praesideo - Configuration Examples 209

Praesideo - Digital Public Address and Emergency Sound System

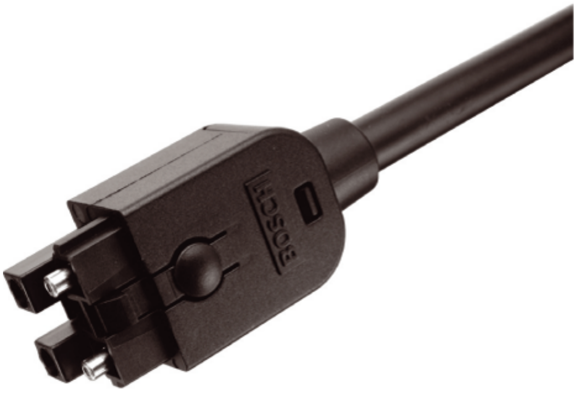
Praesideo is a fully digital public address system that meets all the requirements placed by professional users on a public address/emergency sound system. It brings highly innovative and advanced digital technology to the public address market. The processing and communication of both audio signals and control data entirely in the digital domain makes the system superior to other currently available public address and emergency sound systems. Digital signal processing allows significant improvements in audio quality to be achieved. The Praesideo system is configured from a PC, making installation and configuration very simple and user-friendly.

All audio processing is digital. Communication between the units is via plastic fiber or glass fiber cabling, depending on the distance between the units. Because the system uses the daisy chain principle, cabling and installation are very quick, simple and easy.

User-friendly Software Control
The system has user-friendly software to configure all system functions. The software is web-based technology, and provides authorized users full freedom of configuration: any time and from anywhere in the network. A simple and well-organized user interface provides an intuitive environment for configuring the system. The software has plausibility checks, and informs the user of any parameters, which have not been set, before exiting from any stage of the configuration process.

Network Approach
The system architecture is based on the daisy chaining of units. Equipment can be placed anywhere a network connection is available. Customers can expand their systems easily without adding additional electronics to the network controller unit. Thanks to this network architecture, a small initial system can be expanded later by simply adding the required new units to the existing network. The same is true for modifications to the PA system that become necessary later, due to reorganizations, structural changes, etc.

The system can be configured for redundant cabling using a ring cabling structure.



Distributed Control
The system design distributes the control of various system functions, as well as processing, throughout the system. The external interfaces, inputs and outputs, can be located anywhere in the network. All units can process audio input and output signals. This allows the network controller to concentrate on other activities such as the routing of announcements, taking actions on control inputs, etc. As a result, the response times are much shorter than for those of systems with centralized

processing of all signals. The system scales gracefully, because each new unit increases the overall digital signal processing power of the system.

Combination of Functions

The Praesideo range of equipment has multiple functions combined in a single unit. This feature drastically reduces the number of different types of equipment used in the system. For example, functions such as audio processing, audio delay, amplifier monitoring (including spare switching), and speaker line monitoring are provided by the power amplifier unit itself. This makes the overall system highly cost-effective. The flexible architecture of the Praesideo range of equipment allows the customer to locate any type of equipment anywhere in the building. The configuration software lets an administrator/installer configure any units in the system from any PC with a network connection to the network controller. No local configuring at the equipment end is required, drastically reducing the installation and commissioning time, as well as any changes, which become necessary after commissioning.

EN 60849 and EN 54-16 Certified

The Praesideo range of equipment complies with the various emergency standards, which are applicable all over the world. The network controller can supervise all units in the system, from the microphone capsule of the call station to the loudspeaker line and loudspeakers. A built-in memory stores the last 200 fault messages. All faults are reported back to the network controller. The system also fulfills the requirements for emergency call stations. The open system architecture has the flexibility to provide large numbers of in and outputs, making even the most demanding emergency applications possible.

External Interfaces

Administrators and installers can configure the control inputs to initiate the desired actions in the system. The ability to route any input from one system unit to any other unit makes it possible to use the Praesideo range of products for a wide range of public address and emergency sound system applications.

Reduced Installation Costs

The Praesideo architecture uses the daisy chain principle for both data and audio signals. This makes the system wiring very cost-effective, using two fiber cores for data and audio communication, and a copper wire pair to supply power from the network controller to the units.

High System Flexibility

The Praesideo system is an extremely versatile system. It gives system designers a high degree of flexibility in the number of zones, call stations, audio and control in and outputs, etc., that they can use. The flexibility of unit distribution is also greater than legacy systems, and it is usually easier to place elements closer to where they are needed.

System overview

Network Controller

The network controller is the heart of the system, and stores all configuration information. It provides the Ethernet interface for connection to the PC to enable system configuration, as well as diagnostic and logging functions. The network controller stores the digital audio messages for (scheduled) announcements on a built-in flash card. The controller monitors all the system components and reports any changes in status. The unit provides four audio inputs and four outputs, as well as eight control inputs and five control outputs. The control inputs can trigger actions in the system. Administrators and installers can define the control input characteristics in the configuration software. Control inputs can be programmed for momentary or toggle operation, act on make or break, supervision, etc. They can be used to initiate actions, and can be linked to external equipment. The network controller stores and shows the last 200 fault messages. The availability of the digital audio messages, the alarm tones, and the control inputs are continuously supervised. An internally generated pilot tone can be provided on the audio outputs for monitoring purposes.

Power Amplifiers

There are four types of power amplifier units in the Praesideo product range. These differ in the number of amplifier channels per frame: one, two, four, or eight. The overall power rating is 500 watts for all of the amplifiers.

The power amplifiers can be selected for 100 V, 70 V and 50 V output tapping. The fiber optic network cable provides audio input. The amplifiers are equipped with amplifier supervision and spare amplifier changeover relays. They have short-to-ground and short-circuit detection functions, and can generate their own pilot tone for supervision purposes.

Loudspeaker and/or line supervision control boards can be added to an amplifier. The control board communicates with supervision boards at the end of the line and/or in individual loudspeakers. Their status is communicated over the loudspeaker line itself without interfering with the audio signal.

The power amplifiers are equipped with audio processing facilities for each amplifier channel. They support configurable delay, three parametric equalizer sections and two shelving equalizers per channel. An ambient microphone connection enables automatic output level adjustment for maximum intelligibility. The power amplifier has a supervised connection for a 48 VDC backup power supply.

Multi Channel Interface and Basic Amplifiers
The basic amplifiers are cost effective alternatives to the regular Praesideo power amplifiers, for situations where no built-in digital signal processing functions, such as equalizers, delay and AVC are required. They do not have a Praesideo network connection. Instead, these amplifiers are connected to the Praesideo network via the multi channel interface.

The basic amplifiers are high-efficiency, class-D power amplifiers for public address and emergency sound systems. The multi channel interface provides audio signals to all basic amplifier channels and has full control. The basic amplifier is fully supervised, and fault events are reported via the multi channel interface to the Praesideo network controller. The amplifiers have connections for separate group A and group B loudspeakers in a zone and can be configured for class-A loudspeaker loop wiring.

The multi channel interface provides 16 configurable output channels (14 main outputs and 2 spare outputs), 32 control inputs and 16 control outputs. With its built-in supervision controller, it can also take care of loudspeaker and loudspeaker line supervision for all connected basic amplifier outputs.

Call Station Basic
The call station basic has a direct network interface, one press-to-talk-key, a monitoring speaker and a headphone socket. The volume control on the front of the unit adjusts the loudspeaker or headphone volume. Up to 16 call station keypads can be connected to the unit. LEDs on the unit indicate the status of the system, call station, and call.

Call Station Keypad
The call station keypad has eight selection keys and status indicators. This unit connects to a basic call station through a local interface. Each selection key has one bi-color LED, which shows the status of the selection.

Call Station Numeric Keypad
The numeric keypad provides a telephone-like user interface for numeric zone and zone group selection. It connects to a basic or remote call station and has a LCD to show selections and their status. Also a user access control function can be configured.

Call Station Kit
The call station kit has the same functions as the basic call station, and is intended for the construction of custom-made units. The kit is supplied without a housing for easy installation in panels, walls or custom made housings. It has a power supply input for both the call station itself and the call station keypads. The external power supply can be monitored by connecting its fault control output to the control input of the call station kit.

Call Station Keypad Kit
The kit is a call station keypad without housing, but with the same functionality. The kit facilitates the construction of custom applications, where special placement, custom switches, and/or custom indicators are desired.

Call Station Remote
In many applications, call stations must be located relatively far away from the rest of the system. For such cases, the Praesideo system provides the remote call station as a cost-effective alternative. It has the same functionality as the basic call station, but does not connect to the Praesideo network directly. Instead, it connects to the call station interface via a CAT 5 cable with a maximum length of 1000 meters. Thus, the distance from the remote call station to the network is not part of the overall network length. Often an existing CAT 5 cable can be used, further reducing costs. Up to 16 call station keypads or call station keypad kits can be connected, including numeric keypad.

Call Station Remote Kit
The remote kit is a version of the remote call station with the same functionality, but without the housing for easy installation in custom-applications.

Call Stacker
The call stacker is a unit that records calls that cannot be sent to all required zones because some are occupied by a higher priority call. Recorded calls are automatically repeated to these zones when they become available. The call stacker can also be used as time-shifter to avoid acoustic feedback from a loudspeaker to the active microphone. The call is recorded and broadcast after the recording has finished. The call can be pre-monitored before broadcast with the option to cancel the call.

Call Station Interface
The call station interface is a unit that interfaces between a remote call station and the Praesideo network. Because a remote call station uses CAT 5 cable for interconnection and does not have Praesideo network connections, a call station interface is needed. The call station interface also provides a local power input as well as control inputs, and delivers power to the remote call station. The call station interface interfaces to the remote call station via a bidirectional digital interface. Because not all 28 Praesideo audio channels, but only the required microphone and monitor audio channels are transported on this interface, the bit-rate is much lower. The lower bit rate allows the interconnection cable to be much longer than the typical Praesideo network connection between units.

Audio Expander
The audio expander can provide additional audio inputs and outputs to the system. The unit has four transformer isolated audio inputs and four transformer isolated audio outputs, as well as eight control inputs and five control outputs. The audio inputs can be configured for background music, microphone or line inputs. The control inputs can be configured to initiate actions.

CobraNet Interface
The CobraNet interface can insert up to four audio channels from CobraNet into the Praesideo system and up to four audio channels from Praesideo into a CobraNet network. CobraNet, developed by Peak Audio (a division of Cirrus Logic, Inc.), is a network protocol for real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks. Digital audio data is directly converted between Praesideo and CobraNet with no audio processing other than sample rate conversion.

Control inputs and outputs provide external interfacing. The CobraNet interface gets its power from the Praesideo network and does not need a mains or battery connection. CobraNet interfaces are often used to interconnect two or more Praesideo subsystems via Ethernet. The audio channels are transported via CobraNet and the Praesideo control data via the Praesideo Open Interface.

IP Audio Interface
The IP audio interface is a universal, IP-based audio device supporting VoIP and audio over IP applications. It is an ideal solution for bridging audio and contact closures over long distance LAN and WAN networks. It extends and interfaces to Praesideo and non-network based traditional public address systems without the need for a PC during operation.

Network Splitter

The network splitter allows the main network line to be split into branches. The branch lines are still supervised, but do not have the redundant cabling of the main network line. The network splitter has an option to connect a 48 VDC supply that can supply additional power if required. The network splitter can also function as a repeater to extend the cable another 50 meters with plastic fiber.

Fiber Interfaces
Most of the Praesideo system units have plastic fiber optic interfaces. Plastic fiber is used to interconnect nodes which are less than 50 meters apart. For distances of more than 50 meters, glass fiber optic cable is used. A fiber interface converts from plastic to glass fiber, and vice versa. The fiber interface has a power supply input to provide power to remote network sections, and two control inputs. The control inputs can pass on supervision information about the power supply connected to the fiber interface.
Different models exist for single-mode and multi-mode glass fiber.

Certifications and approvals

Region	Certification	
Europe	CE	
	CE	KEMA
	CE	
	CE	
	CPD	
	TUEV- SUED	
	GL	
Poland	CNBOP	

PRS-NCO3 Network Controller

Features

- Public address and emergency sound system control unit
- Control and routing of 28 simultaneous audio channels
- Ethernet interface for configuration, control, diagnostics, and logging
- Digital storage for pre-recorded messages
- EN 54-16 and ISO 7240-16 system certification

The network control unit is the heart of the Praesideo system. The unit routes up to 28 simultaneous audio channels, delivers power to the system, reports faults, and controls the system. Audio inputs can be announcements from call stations, background music, or local audio. The network control unit can be configured for the most complex public address systems. The configuration can be done comfortably and efficiently via a PC.
The PC is only needed for configuration. The controller can operate independently of the PC. However, the controller can use a PC to display information on the system status using the software, supplied with the unit.
The unit can be freestanding on a tabletop or mounted in a 19" rack.
The PRS-NCO3 network controller needs PRS-SW software version 4.0 or higher.

Functions

Connectivity

The network controller has four analog audio inputs. Of these, two are selectable between microphone and line. The other two inputs are fixed as line inputs. The microphone/line inputs can be used as call inputs, if they are programmed conditionally to any of the eight control inputs, which are freely programmable for system actions, with freely programmable priorities. The line inputs provide selectable 20 kHz pilot tone detection for cable supervision.
The controller has four analog audio line outputs each with a selectable 20 kHz monitoring signal. Three control outputs are programmable for faults or calls, and two others are used to connect visual and audible fault indicators.
A 24 Vdc auxiliary output is available that can be used to power an external visual fault and/or emergency light tower.

Operation and performance

The network controller is completely configurable from a PC using the supplied software, which can also provide the current status of the running system, as well as comfortable and efficient configuration. The controller can also run without a connected PC, once it has been configured. The front panel has a 2 x 16-character LCD display and a rotary control to navigate through the menu and select the menu items. Address, version, fault events, and monitor enquiries can be done using the display and control knob. The network controller can control up to 60 nodes. Nodes include equipment such as power amplifiers, audio expander units, call stations, call station kits, etc.
To meet the requirements for emergency sound systems, automatic messaging is included in the network controller. The controller has a built-in, replaceable compact flash memory card, to match the storage requirements for audio messages. Four messages can be played simultaneously. Message storage and the messages themselves are monitored. Audio messages (as a set of wav files) can be downloaded from a computer via the Ethernet link. The controller also stores a wide range of attention tones, test tones, and alarm tones, all accessible by any call stations or control inputs for announcement or alarm broadcast. The network controller has a built-in buzzer for notification of faults or emergency situations. An internal real time clock allows for event scheduling, such as playing scheduled announcements or changing the volume of background music during evening hours. It has extensive audio processing possibilities for the audio inputs and the audio outputs. Parametric equalization, limiter and gain can be easily adjusted using the configuration software. There is a headset jack for monitoring the audio channels.

Security

The network controller supports redundant network cabling. It can be wired as a branched network or redundant loop. The system can handle 256 priorities, for calls to hundreds of zones, satisfying even the most complex public address and emergency requirements. The controller monitors the status of all the equipment in the system, reports status changes, and stores the last 200 fault messages in the system. This monitoring extends from the capsule of a call station microphone to the end of a loudspeaker line. The external cables connected to the control inputs are monitored for short and open circuit. An internally generated pilot tone is available for monitoring the audio outputs. The controller operates both on mains power and on a 48 Vdc battery power supply for emergency back up, with automatic switchover. It can supervise both of the power supplies.

Controls and indicators

Front

- 2 x 16-character LCD display
- Rotary/push button

Back

- Mains switch
- Voltage selector

Interconnections

Front

- Headphone output

Back

- Mains input
- Battery backup input

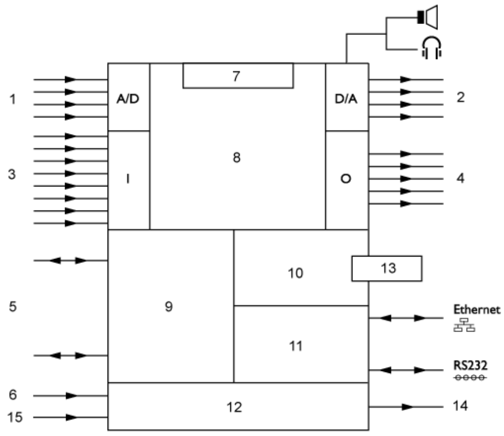
- Eight control inputs
- Two analog audio mic/line inputs
- Two analog line audio inputs
- Five control outputs (two dedicated fault)
- Four analog audio line outputs
- Ethernet
- RS232
- Two system network connections
- 24 Vdc auxiliary output

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE
	CE
	CE DOP
	CPD
	GL

Installation/configuration notes



1	Audio inputs
2	Audio outputs
3	Control inputs
4	Control outputs
5	Plastic optical fiber network
6	Mains in
7	Display, control and buzzer
8	Network processor and DSP
9	Network redundancy switching
10	Message manager
11	Micro processor
12	Power supply
13	Compact flash (CF) memory card
14	24 Vdc out
15	48 Vdc backup power supply in

PRS-NCO3 rear view

Parts included

Quantity	Component
1	PRS-NCO3 Network Controller
1	Power cord
1	Set of mounting brackets for 19"rack
1	Set of feet
1	Set of connectors
1	PRS-SW Configuration, Diagnostic and Logging Software

Technical specifications

Electrical

Mains power supply	
Voltage	115/230 VAC ±10%, 50/60 Hz
Power consumption	21 W with no load 160 W with maximum load
Battery power supply	
Voltage	48 Vdc -10% to +20%
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Line inputs	2 x
Connectors	3-pin XLR and stereo cinch (for each line)
S/N	>87 dBA at maximum level
CMRR	>40 dB
Input range	+6 dBV to +18 dBV (XLR) -6 dBV to +6 dBV (cinch)
Control inputs	8 x
Connectors	Removable screw terminals

Operation	Closing contact (with supervision)
Control outputs	5 x
Connectors	Removable screw terminals
Mic / line inputs	2 x
Connector	3-pin XLR
Nominal Input Level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	>55 dB at 100 Hz
Input Impedance	1360 ohm
Phantom supply	12 V ±1 V @ 15 mA
Input range	-7 dB to 8 dB ref nominal input level
Line outputs	4 x
Connectors	XLR and stereo cinch (for each line)
Output Impedance	<100 ohm
S/N	>89 dBA at maximum level
Crosstalk	<-85 dB
Signal range	-12 dBV to +18 dBV (XLR) -24 dBV to +6 dBV (cinch)
Distortion at 1 kHz	<0.05%

Mechanical

Dimensions (H x W x D)	
tabletop, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
in rack, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	Standalone; 19" rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-40 to +70 ºC (-40 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-NCO3 Network Controller
System controller, router, supervisor and interface, built-in web server for configuration, provides local audio and control I/O, 4-channel WAV-message player, power supply for powering other network connected units, rack unit 2 RU.
Order number **PRS-NCO3**

PRS-SW Praesideo Software
DVD with system software for Praesideo, used for system configuration, diagnostics and logging, supplied with PRS-NCO3.
Order number **PRS-SW**

PRS-NCO-B Network Controller

Features

- Public address and emergency sound system control unit
- Fully digital with four audio inputs and four audio outputs
- Control and routing of 28 audio channels
- Eight supervised control inputs and five control outputs
- Ethernet interface for configuration, control, diagnostics, and logging

The network control unit is the heart of the Praesideo system. The unit routes up to 28 simultaneous audio channels, delivers power to the system, reports faults, and controls the system. Audio inputs can be announcements from call stations, background music, or local audio. The network control unit can be configured for the most complex public address systems. The configuration can be done comfortably and efficiently via a PC. The PC is only needed for configuration. The controller can operate independently of the PC. However, the controller can use a PC to display information on the system status using the software, supplied with the unit. The unit can be freestanding on a tabletop or mounted in a 19" rack.

Functions

Connectivity

The network controller has four analog audio inputs. Of these, two are selectable between microphone and line. The other two inputs are fixed as line inputs. The microphone/line inputs can be used as call inputs, if they are programmed conditionally to any of the eight control inputs, which are freely programmable for system actions, with freely programmable priorities.

The controller has four analog audio line outputs each with a selectable 20 kHz monitoring signal. Three control outputs are programmable for faults or calls, and two others are used to connect visual and audible fault indicators.

Operation and performance

The network controller is completely configurable from a PC using the supplied software, which can also provide the current status of the running system, as well as comfortable and efficient configuration. The controller can also run without a connected PC, once it has been configured. The front panel has a 2 x 16-character LCD display and a rotary control to navigate through the menu and select the menu items. Address, version, fault events, and monitor enquiries can be done using the display and control knob. The network controller can control up to 60 nodes. Nodes include equipment such as power amplifiers, audio expander units, call stations, call station kits, etc.

To meet the requirements for emergency sound systems, automatic messaging is included in the network controller. The controller has a built-in, replaceable compact flash memory card, to match the storage requirements for audio messages. Four messages can be played simultaneously. Message storage and of the messages themselves are monitored. Audio messages (as a set of wav files) can be downloaded from a computer via the Ethernet link. The controller also stores wide range of attention tones, test tones, and alarm tones, all accessible by any call stations or control inputs for announcement or alarm broadcast. An internal real time clock lets the network controller automatically do things, such as playing scheduled announcements or changing the volume of background music during evening hours. It has extensive audio processing possibilities for the audio inputs and the audio outputs. Parametric equalization, limiter and gain can be easily adjusted using the configuration software. There is a headset jack for monitoring the audio channels.

Security

The network controller supports redundant network cabling. It can be wired as a branched network or redundant loop. The system can handle 256 priorities, for calls to hundreds of zones, satisfying even the most complex public address and emergency requirements.

The controller monitors the status of all the equipment in the system, reports status changes, and stores the last 200 fault messages in the system. This monitoring extends from the capsule of a call station microphone to the end of a loudspeaker line. The external cables connected to the control inputs are monitored for short and open circuit. An internally generated pilot tone is available for monitoring the audio outputs. The controller operates both on mains power and on a 48 V battery power supply for emergency back up, with automatic switchover. It can supervise both of the power supplies.

Controls and indicators

Front
- 2 x 16-character LCD display
- Rotary/push button

Back
- Mains switch
- Voltage selector

Interconnections

Front
- Headphone output

Back
- Mains input
- Battery backup input
- Eight control inputs
- Two analog audio mic/line inputs
- Two analog line audio inputs

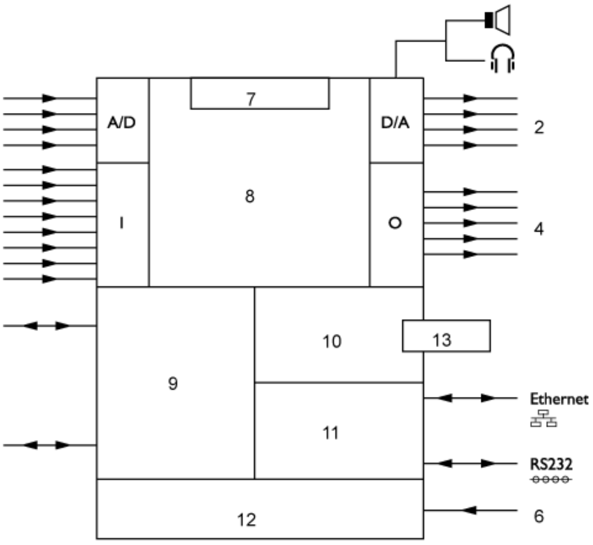
- Five control outputs (two dedicated fault)
- Four analog audio line outputs
- Ethernet
- RS232
- Two system network connections

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	**Certification**
Europe	CE
	CE
	CE DOP
	CPD
	GL

Installation/configuration notes



1	Audio inputs
2	Audio outputs
3	Control inputs
4	Control outputs
5	Plastic optical fiber network
6	Mains
7	Display and control
8	Network processor and DSP
9	Network redundancy switching
10	Message manager
11	Micro processor
12	Power supply
13	Compact flash (CF) memory card

Rear view

Parts included

Quantity	**Component**
1	PRS-NCO-B Network Controller
1	Power cord
1	Set of mounting brackets for 19” rack
1	Set of feet
1	Set of connectors
1	PRS-SW Configuration, Diagnostic and Logging Software

Technical specifications

Electrical

Mains power supply	
Voltage	115/230 VAC ±10%, 50/60 Hz
Power consumption	14 W with no load 170 W with maximum load
Battery power supply	
Voltage	48 VDC -10% to +20%
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Line inputs	2 x
Connectors	3-pin XLR and stereo cinch (for each line)
S/N	>87 dBA at maximum level
CMRR	>40 dB
Input range	+6 dBV to +18 dBV (XLR) -6 dBV to +6 dBV (cinch)
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	5 x
Connectors	Removable screw terminals
Mic / line inputs	2 x
Connector	3-pin XLR

Nominal Input Level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	>55 dB at 100 Hz
Input Impedance	1360 ohm
Phantom supply	12 V ±1 V @ 15 mA
Input range	-7 dB to 8 dB ref nominal input level
Line outputs	4 x
Connectors	XLR and stereo cinch (for each line)
Output Impedance	<100 ohm
S/N	>89 dBA at maximum level
Crosstalk	<-85 dB
Signal range	-12 dBV to +18 dBV (XLR) -24 dBV to +6 dBV (cinch)
Distortion at 1 kHz	<0.05%

Mechanical

Dimensions (H x W x D)	
tabletop, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
in rack, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)

Weight	7 kg (15.4 lb)
Mounting	Standalone; 19" rack
Color	Charcoal with silver

Environmental

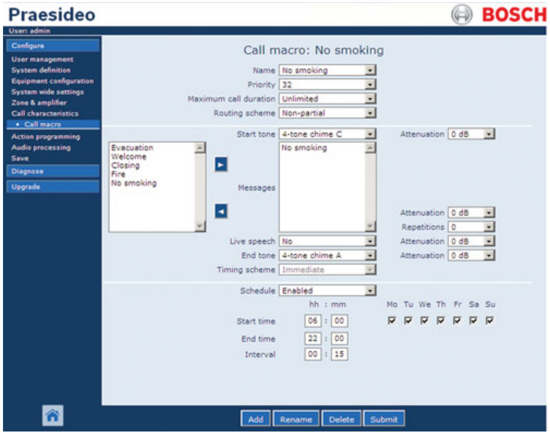
Operating temperature	-5 to +55 °C (+23 °F to +131 °F)
Storage temperature	-40 to +70 °C (-40 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

Software Options

PRS-SW Praesideo Software
DVD with system software for Praesideo, used for system configuration, diagnostics and logging, supplied with PRS-NCO3.
Order number **PRS-SW**

PRS-SW Praesideo Software



Call macro: No smoking

Name: No smoking
Priority: 32
Maximum call duration: Unlimited
Routing scheme: Non-partial
Start tone: 4-tone chime C — Attenuation: 0 dB
Evacuation
Welcome
Closing
Fire
No smoking
Messages: No smoking — Attenuation: 0 dB
Repetitions: 0
Live speech: No — Attenuation: 0 dB
End tone: 4-tone chime A — Attenuation: 0 dB
Timing scheme: Immediate
Schedule: Enabled
hh : mm
Start time: 06 : 00
End time: 22 : 00
Interval: 00 : 15
Mo ☑ Tu ☑ We ☑ Th ☑ Fr ☑ Sa ☑ Su ☑

Features

- Web-based user interface
- Can be accessed using a PC with browser
- Different levels of access rights can be assigned
- All system and unit parameters can be configured
- Easy navigation

This software has three parts:

- Configuration software, which is installed in the network controller
- Diagnostic & logging software, which is installed in the network controller, and optionally on a logging PC
- File transfer software, which is to be installed on the configuration PC and supplied together with the network controller

System overview

Configuration software

The configuration software is required for every system. Once the configuration data entry has been completed and downloaded to the network controller, the system can operate without the configuration PC. The configuration software is required only during installation and to make changes to an existing system configuration. The configuration software design allows even first-time users to navigate easily through the configuration.

Diagnostic and logging software

The main function of the diagnostic & logging software is to monitor and record the status of all elements of the PA system. This software logs all events, such as calls and changes in the status of system components, and displays the current status of the system. It can provide real-time logging to a PC.

File transfer software

The file transfer software transfers both data and message files from the PC to the network controller.

Functions

Configuration Software

The software supports three access levels: administrator, installer, and user. Each of the three levels carries different access rights.

Call macros allow users to configure various functions and/or actions that can be assigned to inputs such as control inputs and call station keys. The same call macro can be assigned to multiple inputs. A call macro defines: priority, start and end tones, an audio input, a message or sequence of messages, number of repetitions, scheduling with duration and interval, and more.

Zone grouping allows the user to define zones covering the same types of area. In the zone configuration, zone-related items such as amplifier channel outputs, audio outputs and control outputs can be assigned to defined zones.

A power amplifier can be linked to a spare power amplifier so that if there is a fault in the power amplifier it will automatically change over to the spare power amplifier. The ratio of main power amplifiers to spare power amplifiers is flexible, and can be configured to meet specific application requirements.

The software can configure all equipment inputs and outputs in the system. All audio inputs and outputs have audio processing facilities, including parametric equalization with high and low-pass filters for inputs and outputs, and gain and limiter adjustments for inputs only. The audio inputs can be set to microphone or line. Delays can be configured for each amplifier output individually. The level of the 20 kHz pilot tone will be adjusted automatically. Keys on call station keypads can be configured with various functions. A call station can be defined as an emergency call station, with the ability to add zones or audio outputs during an announcement. Control inputs can be configured for a sequence of functions. Control inputs can be configured for monitoring lines connected to them for open-circuits and short-circuits. Zones can be configured for various, time-based volume settings. BGM sources can be assigned to music channels, which can be assigned to different zones/ audio outputs.

Diagnostic and Logging Software

Modes of enquiry supported by the software include general events, call logging, and fault logging. This part of the software allows monitoring the fault status of all units, as well as any status changes in the system. Users can view the last 200 fault messages, which are stored in the network controller. Control inputs can be used for reporting the fault status of third-party equipment, which is not part of the Praesideo system, allowing users to view logged events of monitored external devices. The software also provides control of audible and visual fault indicators.

Faults and alarm states can be acknowledged and reset, and the acknowledgement and reset actions are logged. Optionally, a PC-based logging server can store events from multiple systems in a database. This can be accessed remotely by a dedicated Praesideo log viewer program.

File Transfer Software

File transfer is protected by user IDs and passwords. The message set (a set with multiple wav files), which has to be stored in the network controller, can be assembled, stored on the PC and sent to the network controller. A configuration file, which has been created in off-line mode, can be transferred to the network controller. The configuration file can also be retrieved from the network controller.

Certifications and approvals

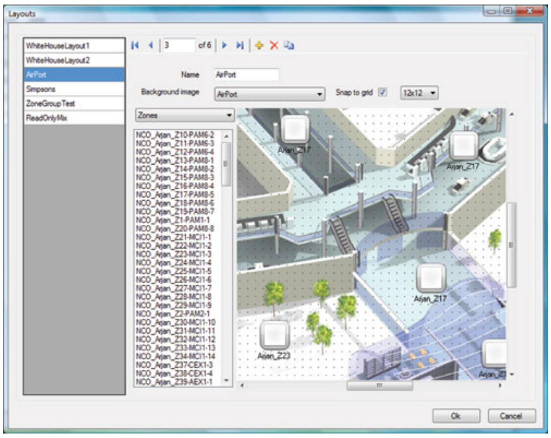
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16

Region	Certification	
Europe	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	

Ordering information

PRS-SW Praesideo Software
DVD with system software for Praesideo, used for system configuration, diagnostics and logging, supplied with PRS-NCO3.
Order number **PRS-SW**

PRS-SWCS PC Call Server and PRS-SWCSL PC Call Server NCO Client


Layouts
WhiteHouseLayout1
WhiteHouseLayout2
AirPort
Simpsons
ZoneGroupTest
ReadOnlyMix
3
of 6
Zones
NCO_Arjan_Z10-PAM6-2
NCO_Arjan_Z11-PAM6-3
NCO_Arjan_Z12-PAM6-4
NCO_Arjan_Z13-PAM8-1
NCO_Arjan_Z14-PAM8-2
NCO_Arjan_Z15-PAM8-3
NCO_Arjan_Z16-PAM8-4
NCO_Arjan_Z17-PAM8-5
NCO_Arjan_Z18-PAM8-6
NCO_Arjan_Z19-PAM8-7
NCO_Arjan_Z1-PAM1-1
NCO_Arjan_Z20-PAM8-8
NCO_Arjan_Z21-MCI1-1
NCO_Arjan_Z22-MCI1-2
NCO_Arjan_Z23-MCI1-3
NCO_Arjan_Z24-MCI1-4
NCO_Arjan_Z25-MCI1-5
NCO_Arjan_Z26-MCI1-6
NCO_Arjan_Z27-MCI1-7
NCO_Arjan_Z28-MCI1-8
NCO_Arjan_Z29-MCI1-9
NCO_Arjan_Z2-PAM2-1
NCO_Arjan_Z30-MCI1-10
NCO_Arjan_Z31-MCI1-11
NCO_Arjan_Z32-MCI1-12
NCO_Arjan_Z33-MCI1-13
NCO_Arjan_Z34-MCI1-14
NCO_Arjan_Z37-CEX1-3
NCO_Arjan_Z38-CEX1-4
NCO_Arjan_Z39-AEX1-1
Arjan_Z17
Arjan_Z17
Arjan_Z17
Arjan_Z23
Ok
Cancel

Name: AirPort
Background image: AirPort
Snap to grid ☑ 12x12

Features

- Serves multiple Call Station Clients and/or Telephone Interface Clients
- Controls multiple Network Controllers in extended systems
- Includes a license for a single Network Controller
- Controls user access with selectable rights per user

The PRS-SWCS PC Call Server is a Windows service connected to one or more Praesideo network controllers via TCP/IP, using the Praesideo open interface. It is used in combination with one or more client applications, such as the PC Call Station Client and the PC Telephone Interface Client, handling all operational requests.
The PRS-SWCS PC Call Server is configured via an included PC Call Server Configuration Client, running on the same computer.

Functions

Configuration and Control

The PRS-SWCS PC Call Server provides facilities for connected clients, such as identification, making of calls, BGM source and volume control, acknowledge and reset of emergency modes, time synchronization and license control. It operates on Windows XP, Vista and Windows 7 platforms.

Via the PRS-SWCS PC Call Server Configuration Client the connections of the connected network controllers can be monitored and set up. In case of multiple network controllers audio connections between network controllers can be configured to enable calls from one Praesideo network to other Praesideo networks.

Configuration data of each connected Praesideo subsystem can be retrieved from the network controllers and used for configuration of the PRS-SWCS PC Call Server.

Multiple views of a system can be configured as background images with zone and zone group locations, independent for different users of clients. Also multiple predefined calls can be configured for different users which can be accessed via e.g. one or more PRS-CSC PC Call Station Clients. These predefined calls may contain information about priority, zones, tones, messages, live speech and zones. The zones can be part of different Praesideo systems, as long as all these systems are connected to the PRS-SWCS PC Call Server.

The PRS-SWCS PC Call Server allows control of BGM source and volume in the configured zones and gives feedback about the actual volume to the clients.

License

The PRS-SWCS PC Call Server uses a USB dongle for identification of the system for all licenses purchased. The dongle is supplied with the PRS-SWCS PC Call Server. The PRS-SWCS PC Call Server already comes with a license for use with one network controller. Additional licenses for more network controllers, connected to the same PRS-SWCS PC Call Server are available as PRS-SWCSL PC Call Server NCO License.
Applications, such as the PRS-CSC PC Call Station Client, also require a license. Only one application license is required, independent of the number of clients (operator panels) that are connected.

Parts included

1	PRS-SWCS PC Call Server license (including license for one network controller).
1	USB dongle
1	PRS-SW Praesideo software CD

Ordering information

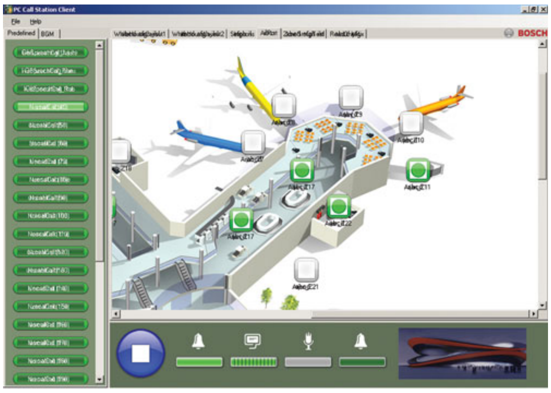
PRS-SWCS PC Call Server
A license for a Windows PC based call server, used for hosting multiple PC call station clients or telephone interface clients on a TCP/IP network, supports systems with multiple network controllers, license for 1 network controller included.
Order number **PRS-SWCS**

PRS-SWCSL PC Call Server NCO License
A license for extending the PC Call Server with 1 additional network controller, to be used with the Praesideo PC Call Server.
Order number **PRS-SWCSL**

PRS-CSC PC Call Station Client
A license for a PC based programmable touch or mouse controlled call-station user-interface with synoptic zone selection and status indication, to be used with Praesideo PC Call Server.
Order number **PRS-CSC**

PRS-TIC PC Telephone Interface Client
A license for a PC based telephone interface, used with the Praesideo PC Call Server for making calls to Praesideo via a landline telephone, cell phone, or soft phone (VoIP).
Order number **PRS-TIC**

PRS-CSC PC Call Station Client



Features

- PC interface for operators with synoptic view of zone locations in tabbed windows
- Configurable access for different users
- Call and BGM control
- Support for multiple network controllers as one system

The PRS-CSC PC Call Station Client is a client of the PRS-SWCS PC Call Server and must be used in combination with the PRS-SWCS PC Call Server. It operates with Windows XP / Vista / 7 and can be used on the same PC as the PRS-SWCS PC Call Server or on different PCs. An almost unlimited number of PRS-CSC PC Call Station Clients can be installed and used under the same license.

Functions

User interface

The PRS-CSC PC Call Station Client provides a graphical user interface to the operator where the operator can select predefined calls, add or remove zones from that predefined call by clicking on zone icons in a graphical system layout, and then start, stop and/or abort this call.
Multiple calls can be active simultaneously from the same client.
Zone icon appearance shows the status of each zone.
The library of zone icons and background colors can be modified by the customer.
Also BGM source selection and volume can be selected and controlled per zone. The actual source and volume setting is shown in the zone icon for each zone.

Configuration

In the configuration of the PRS-SWCS PC Call Server access rights per user are set, e.g. the right to start certain predefined calls or to access certain zones or overviews.
A logo of the company or site where the PRS-CSC PC Call Station Client is located can be added to the user interface. Also different user languages can be selected from a growing list of supported languages.

Parts included

1	PRS-CSC PC Call Station Client license

Ordering information

PRS-CSC PC Call Station Client
A license for a PC based programmable touch or mouse controlled call-station user-interface with synoptic zone selection and status indication, to be used with Praesideo PC Call Server.
Order number **PRS-CSC**

PRS-SWCS PC Call Server
A license for a Windows PC based call server, used for hosting multiple PC call station clients or telephone interface clients on a TCP/IP network, supports systems with multiple network controllers, license for 1 network controller included.
Order number **PRS-SWCS**

PRS-SWCSL PC Call Server NCO License
A license for extending the PC Call Server with 1 additional network controller, to be used with the Praesideo PC Call Server.
Order number **PRS-SWCSL**

PRS-xPxxx and LBB 4428/00 Power Amplifiers

Features

- 1, 2, 4, or 8 audio outputs (selection from 100 / 70 / 50 V outputs)
- Audio processing and delay for each amplifier channel
- Amplifier supervision and spare amplifier switching
- Loudspeaker line and loudspeaker supervision (LBB 4428/00 only line supervision)
- Eight control inputs and 1, 2, 4 or 8 control outputs

There are four types of Power Amplifier units in the Praesideo product range. These differ in the number of amplifier channels per frame: one, two, four, or eight. The overall power rating is 500 watts for all of the amplifiers.

The Power Amplifiers can be set to 100 V, 70 V and 50 V output tappings. They have short-to-ground and short-circuit detection functions, and can generate their own pilot tone for supervision purposes.

Notice

Region specific versions of these amplifiers are indicated by a suffix to the typenumber (-EU, -CN, ...). The amplifiers are completely identical, but may differ in certifications, power cord and country of origin.

Functions

The Power Amplifiers receive input signals over the network. They also have two auxiliary audio inputs (four for LBB 4428/00) for local audio. Their eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Each control input has the ability to monitor the attached line for open and short-circuits. Control outputs are freely programmable for faults and call related actions.

The 2 x 16-character display and the rotary control enable local status enquiries. The display shows the VU-meter reading, when the audio monitoring mode is active. Audio can be monitored by headphone.

The units are self-monitoring and continually report their status to the network controller. They support both single branch and redundant loop cabling. The amplifiers have a changeover facility for spare power amplifier switching. Changeover relays are included with the units. The amplifiers have a 48 V DC back-up supply input.

The digital audio processing can handle three parametric equalization sections and two shelving equalization sections per channel with configurable audio delay.

Controls and indicators

- 2 x 16-character LCD for status display
- Rotary/push control button
- Mains switch
- Voltage selector for PRS-xPxxx

Interconnections

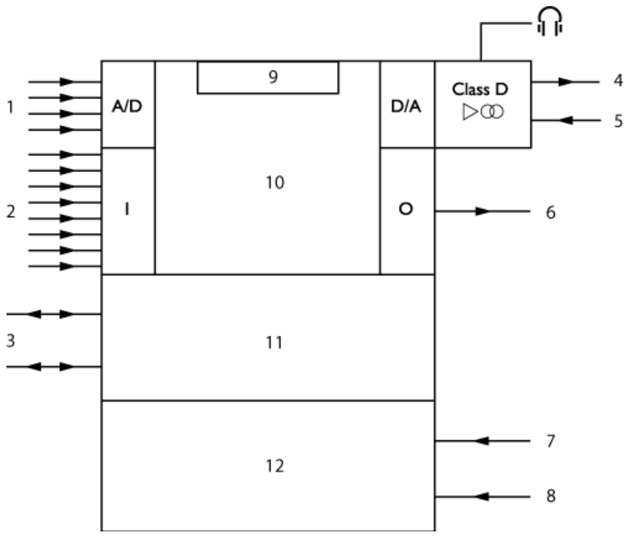
- Mains input
- Battery backup input
- Two system network connections
- Two mic/line inputs (four for LBB 4428/00)
- Selectable 100 V, 70 V or 50 V outputs (per channel)
- Fixed 50 V output
- Eight programmable control inputs
- Control output (for each amplifier channel)
- Headphone output
- Spare amplifier connection (for each amplifier channel)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	**Certification**	
Europe	CE	DOP
	CPD	

Installation/configuration notes



1	Audio inputs, 2 x or 4 x
2	Control inputs
3	Plastic optical fiber network
4	Loudspeaker outputs, 1 x, 2 x, 4 x, 8 x
5	Spare amplifier input
6	Control outputs, 1 x, 2 x, 4 x, 8 x
7	Mains input
8	48 V backup supply
9	Display and control
10	Network processor and DSP
11	Network redundancy switching
12	Power supply

Block diagram

Parts included

Quantity	Component
1	PRS-xPxxx or LBB 4428/00 Power Amplifier
1	Power cord
1	Set of mounting brackets (large) for 19” rack
1	Set of feet
1	Set of connectors

Technical specifications

Electrical

Mains power supply	
Voltage	
PRS-xPxxx	115 / 230 VAC ±10%, 50/60 Hz
LBB 4428/00	100 to 240 VAC ±10%, 50/60 Hz
Power consumption	Pmax -3 dB* / idle** / standby
PRS-1P500	350 / 50 / 20 W
PRS-2P250	350 / 53 / 21 W
PRS-4P125	350 / 66 / 23 W
LBB 4428/00	430 / 90 / 32 W
	* Alarm tone level ** With pilot tone 15 V

Battery power supply	
Voltage	48 VDC -10% to +20%
Power consumption	Pmax -3 dB* / idle** / standby
PRS-1P500	330 / 40 / 10 W
PRS-2P250	330 / 43 / 11 W
PRS-4P125	330 / 56 / 13 W
LBB 4428/00	400 / 65 / 22 W
	* Alarm tone level ** With pilot tone 15 V

Mic/line inputs	2 x (4 x for LBB 4428/00)
Connector	6-pole header for removable screw connector (mono, balanced)
Line	
Frequency response	-3 dB @ 50 Hz and 20 kHz (±1 dB)
S/N	>87 dBA
CMRR	>40 dB @ 1 kHz
Input range	-6 dBV to 6 dBV
Input impedance	22 kohm
Mic	
Frequency response	-3 dB @ 100 Hz and 16 kHz
Nominal input level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	40 dB at 1 kHz
Input impedance	1360 ohm
Phantom supply	12 V ±1 V @ 15 mA
Input range	-7 dBV to +8 dBV ref nominal input value

Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	1 x per amplifier channel
Connectors	Removable screw terminals

Performance	
Frequency response	
PRS-xPxxx	60 Hz to 19 kHz (-3 dB)
LBB 4428/00	80 Hz to 19 kHz (-3 dB)
S/N	>85 dB (no pilot tone)
Crosstalk	<80 dB at nominal load for 1 kHz
Distortion	<0.3% (@ 1 kHz) @ 50% of rated output power

Loudspeaker outputs	PRS-1P500
Rated load resistance	20 ohm (100 V); 10 ohm (70 V) 5 ohm (50 V)
Rated load capacitance	250 nF (100 V); 500 nF (70 V) 1000 nF (50 V)
Rated output power (per channel)	500 W (1 min. at 55 °C)
	250 W (30 min. at 55 °C, cont. at 30 °C)
	125 W (cont. at 55 °C)
Connector	9-pole header for removable screw connector

Loudspeaker outputs	PRS-2P250
Rated load resistance	40 ohm (100 V); 20 ohm (70 V) 10 ohm (50 V)
Rated load capacitance	125 nF (100 V); 250 nF (70 V)) 500 nF (50 V)
Rated output power (per channel)	250 W (1 min. at 55 °C)
	125 W (30 min. at 55 °C, cont. at 30 °C)
	60 W (cont. at 55 °C)
Connector	9-pole header for removable screw connector

Loudspeaker outputs	PRS-4P125
Rated load resistance	80 ohm (100 V); 40 ohm (70 V) 20 ohm (50 V)
Rated load capacitance	62 nF (100 V); 125 nF (70 V)) 250 nF (50 V)
Rated output power (per channel)	125 W (1 min. at 55 °C)
	60 W (30 min. at 55 °C, cont. at 30 °C)
	30 W (cont. at 55 °C)
Connector	9-pole header for removable screw connector

Loudspeaker outputs	LBB 4428/00
Rated load resistance	166 ohm (100 V); 83 ohm (70 V) 42 ohm (50 V)
Rated load capacitance	30 nF (100 V); 60 nF (70 V)) 120 nF (50 V)
Rated output power (per channel)	60 W (1 min. at 55 °C)
	30 W (30 min. at 55 °C, cont. at 30 °C)
	15 W (cont. at 55 °C)
Connector	9-pole header for removable screw connector

Mechanical

Dimensions (H x W x D)	
for tabletop use, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)

Weight	
PRS-1P500	12.6 kg (27.78 lb)
PRS-2P250	13.6 kg (29.98 lb)
PRS-4P125	16.1 kg (35.49 lb)
LBB 4428/00	15.8 kg (34.83 lb)
Mounting	Standalone; 19”-rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Relative humidity	15% to 90%
Air pressure	600 to 1100 h Pa

Ordering information

PRS-1P500 Power Amplifier 1 x 500 W
1-channel power amplifier with Praesideo network connection, 1 x 500 W, rack unit 2 RU.
Order number **PRS-1P500**

PRS-2P250 Power Amplifier 2 x 250 W
2-channel power amplifier with Praesideo network connection, 2 x 250 W, rack unit 2 RU.
Order number **PRS-2P250**

PRS-4P125 Power Amplifier 4 x 125 W
4-channel power amplifier with Praesideo network connection, 4 x 125 W, rack unit 2 RU.
Order number **PRS-4P125**

PRS-1P500-US Power Amplifier 1 x 500 W
1-channel power amplifier with Praesideo network connection, 1 x 500 W, rack unit 2 RU, USA version.
Order number **PRS-1P500-US**

PRS-2P250-US Power Amplifier 2 x 250 W
2-channel power amplifier with Praesideo network connection, 2 x 250 W, rack unit 2 RU, USA version.
Order number **PRS-2P250-US**

PRS-4P125-US Power Amplifier 4 x 125 W
4-channel power amplifier with Praesideo network connection, 4 x 125 W, rack unit 2 RU, USA version.
Order number **PRS-4P125-US**

Accessories

LBB 4440/00 Supervision Control Board
Line and loudspeaker supervision master PCB for mounting in a Praesideo network connected power amplifier, one board is needed per channel.
Order number **LBB4440/00**

LBB 4441/00 Loudspeaker Supervision Board
Loudspeaker supervision slave PCB for mounting on a loudspeaker, operates with LBB4440/00 for monitoring the integrity of the loudspeaker.
Order number **LBB4441/00**

LBB 4443/00 End of Line (EOL) Supervision Board
Line supervision slave PCB for connecting to the end of a loudspeaker line or the end of a spur, operates with LBB4440/00 to monitor the integrity of the line.
Order number **LBB4443/00**

PRS-xBxxx Basic Amplifiers

Features

- High efficiency class-D amplifier channel(s)
- Switched mode power supply
- Local audio inputs
- Mains and battery operation
- Complete supervision

The basic amplifiers are cost effective alternatives to the regular Praesideo power amplifiers, for situations where no built-in digital signal processing functions, such as equalizers, delay and AVC are required. They do not have a Praesideo network connection. Instead, these amplifiers are connected to the Praesideo network via the PRS-16MCI Multi Channel Interface, which provides the basic amplifier with audio signals and has full control. There are four versions, the PRS-1B500 (1 x 500 W), PRS-2B250 (2 x 250 W), PRS-4B125 (4 x 125 W) and the PRS-8B060 (8 x 60 W).

The basic amplifiers are completely supervised and fault events are reported via the multi channel interface to the Praesideo network controller.

The basic amplifiers provide connections for separate group A and group B loudspeakers for each zone, and support class-A loudspeaker loop wiring. The units should be mounted in a 19"-rack with the included mounting brackets.

Notice

Region specific versions of these amplifiers are indicated by a suffix to the typenumber (-EU, -CN, ...). The amplifiers are completely identical, but may differ in certifications, power cord and country of origin.

Functions

Amplification

The PRS-1B500 is a single channel, 500 W unit, the PRS-2B250 is a two-channel amplifier with 250 W per channel, the PRS-4B125 is a four-channel amplifier with 125 W per channel and the PRS-8B060 is an eight-channel amplifier with 60 W per channel. The power supply is switched mode with low inrush current and the units can run on 48 V, battery stand-by power.

Connection

The amplifiers have built-in output transformers for driving 70 and 100 V loudspeakers. They have separate overload-protected group A and group B loudspeaker connections, which support class-A loop wiring. The separate A and B groups of each channel can be configured for redundancy. The units connect to the PRS-16MCI Multi Channel Interface for audio, control and supervision, but stand-alone operation is possible.

Audio

The amplifiers have analog audio line inputs for low priority local audio. Networked audio from the multi channel interface overrides the local audio.

Security

The units operate both on mains power and on a 48 V battery power supply for emergency back up, with automatic switchover. They supervise both of the power supplies, as well as themselves. They can optionally monitor loudspeakers and their lines, when used together with the PRS-16MCI Multi Channel Interface. Complete channel separation allows one channel of the amplifier to function as a spare amplifier for the other amplifier channel.

The amplifier has overload and short circuit protection. An overheat protection circuit switches off the power stage and activates the fault LED on the front panel if the internal temperature reaches a critical limit.

Controls and indicators

Front

- Two two-color LEDs for mains and battery status
- Four amplifier status/level LEDs (per channel)

Back

- Mains on/off switch
- Mains voltage selector
- Rotary volume control for local audio inputs (per channel)

Inside

- 70 V / 100 V selection (per channel)

Interconnection

Back

- Mains socket
- Battery backup input
- Two loudspeaker output screw terminals (per channel)
- Spare amplifier input screw terminal (per channel)
- Two RJ45 connectors (per channel)
- Local audio input screw terminal (per channel)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	
	CE	DOP
	CPD	
	GL	

Parts included

Quantity	Component
1	PRS-1B500 Basic Amplifier 1x500 W or PRS-2B250 Basic Amplifier 2x250 W or PRS-4B125 Basic Amplifier 4x125 W or PRS-8B060 Basic Amplifier 8x60 W
2/4/8/1 6	CAT 5-cables (for PRS-1B500 / PRS-2B250 / PRS-4B125 / PRS-8B060)
1	Power cord
1	Set of mounting brackets (large) for 19” rack
1	Set connectors

Technical specifications

Electrical

Mains power supply	
Voltage	115/230 VAC ±10%, 50/60 Hz
Power consumption	Pmax -3 dB* / idle** / standby
PRS-1B500	450 / 52 / 17 W
PRS-2B250	378 / 46 / 18 W
PRS-4B125	395 / 62 / 16 W
PRS-8B060	400 / 80 / 16 W
	* Alarm tone level ** With pilot tone 15 V

Battery power supply	
Voltage	48 VDC -10% to +20%
Power consumption	Pmax -3 dB* / idle** / standby
PRS-1B500	365 / 34 / 6 W
PRS-2B250	370 / 38 / 6 W
PRS-4B125	375 / 48 / 9 W
PRS-8B060	385 / 62 / 10 W
	* Alarm tone level ** With pilot tone 15 V

Performance	
Frequency response	60 Hz to 19 kHz (-3 dB)
	80 Hz to 19 kHz (-3 dB, PRS-8B060)
Total harmonic distortion	<0.3% (1kHz) at 50% of rated power
Cross talk	-70 dB (1 kHz) nominal (only multichannel)
Signal-to-noise ratio	>85 dB with pilot tone off

Line inputs	
Local audio input	0 dBV (symmetrical)

Speaker outputs	PRS-1B500
Rated load resistance	20 ohm (100 V); 10 ohm (70 V)
Rated load capacitance	250 nF (100 V); 500 nF (70 V)
Rated output power	500 W (1 min. at 55 °C)
	250 W (30 min. at 55 °C, cont. at 30 °C)
	125 W (cont. at 55 °C)

Speaker outputs	PRS-2B250
Rated load resistance	40 ohm (100 V); 20 ohm (70 V)
Rated load capacitance	125 nF (100 V); 250 nF (70 V)
Rated output power (per channel)	250 W (1 min. at 55 °C)
	125 W (30 min. at 55 °C, cont. at 30 °C)
	60 W (cont. at 55 °C)

Speaker outputs	PRS-4B125
Rated load resistance	80 ohm (100 V); 40 ohm (70 V)
Rated load capacitance	60 nF (100 V); 125 nF (70 V)
Rated output power (per channel)	125 W (1 min. at 55 °C)
	60 W (30 min. at 55 °C, cont. at 30 °C)
	30 W (cont. at 55 °C)

Speaker outputs	PRS-8B060
Rated load resistance	160 ohm (100 V); 80 ohm (70 V)
Rated load capacitance	30 nF (100 V); 60 nF (70 V)
Rated output power (per channel)	60 W (1 min. at 55 °C)
	30 W (30 min. at 55 °C, cont. at 30 °C)
	15 W (cont. at 55 °C)

Mechanical

Dimensions (H x W x D)	
rack use, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)

Weight	
PRS-1B500	12 kg (26.5 lb)
PRS-2B250	14 kg (30.9 lb)
PRS-4B125	15 kg (33.4 lb)

PRS-8B060	13.7 kg (30.5 lb)
Mounting	19” rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-1B500 Basic Amplifier 1 x 500 W
1-channel basic power amplifier, 1 x 500 W, to be network connected to the PRS-16MCI, rack unit 2 RU.
Order number **PRS-1B500**

PRS-2B250 Basic Amplifier 2 x 250 W
2-channel basic power amplifier, 2 x 250 W, to be network connected to the PRS-16MCI, rack unit 2 RU.
Order number **PRS-2B250**

PRS-4B125 Basic Amplifier 4 x 125 W
4-channel basic power amplifier, 4 x 125 W, to be network connected to the PRS-16MCI, rack unit 2 RU.
Order number **PRS-4B125**

PRS-8B060 Basic Amplifier 8 x 60 W
8-channel basic power amplifier, 8 x 60 W, to be network connected to the PRS-16MCI, rack unit 2 RU.
Order number **PRS-8B060**

PRS-1B500-US Basic Amplifier 1 x 500 W
1-channel basic power amplifier, 1 x 500 W, to be network connected to the PRS-16MCI, rack unit 2 RU, USA version.
Order number **PRS-1B500-US**

PRS-2B250-US Basic Amplifier 2 x 250 W
2-channel basic power amplifier, 2 x 250 W, to be network connected to the PRS-16MCI, rack unit 2 RU, USA version.
Order number **PRS-2B250-US**

PRS-4B125-US Basic Amplifier 4 x 125 W
4-channel basic power amplifier, 4 x 125 W, to be network connected to the PRS-16MCI, rack unit 2 RU, USA version.
Order number **PRS-4B125-US**

PRS-8B060-US Basic Amplifier 8 x 60 W
8-channel basic power amplifier, 8 x 60 W, to be network connected to the PRS-16MCI, rack unit 2 RU, USA version.
Order number **PRS-8B060-US**

PRS-16MCI Multichannel Interface

Features

- Interface to Praesideo basic amplifiers
- Up to 16 audio channels
- Redundant fiber optic network connection
- Control input and output connections
- Complete supervision

The PRS-16MCI is part of the Praesideo network and acts as an interface to the Praesideo basic amplifiers that do not provide network connectivity. The unit is intended for public address and emergency sound systems. The multichannel interface provides 16 configurable output channels (14 main outputs and two spare outputs). It provides the audio signals to the basic amplifiers and has full control over the amplifiers. It supervises itself and the connected basic amplifiers, and reports fault events to the Praesideo network controller.

The unit should be mounted in a 19"-rack with the included mounting brackets.

Functions

This unit is the interface between the Praesideo network and the Praesideo basic amplifiers. It can get its power from the amplifiers it is connected to, or from the network. It has 16 audio channels for up to 14 main amplifiers (zones) and two spare amplifiers. These can be assigned from a non-mixing matrix of 28 Praesideo channels. There are connections for 32 control inputs and 16 control outputs.

The interface provides supervision for the unit itself, as well as all connected basic amplifiers. The interface monitors the functions of the amplifiers, and can activate a spare amplifier to replace one that reports a fault. It has loop-through in and outputs, supporting failsafe mode, which pass emergency calls through, even if the unit itself fails. A controller for multiple-line and loudspeaker supervision is a standard component. The interface can be configured for redundant group A/B switching, or for class-A loop wiring of the connected basic amplifiers. All configuration is done with software over the network.

Controls and indicators

- 16 two-color LEDs for amplifier channel status
- Two-color LED for network status

Interconnection

- Two system network connectors
- 32 RJ45 jacks for basic amplifiers
- Female XLR-3 connector for failsafe audio loop-through input
- Male XLR-3 connector for failsafe audio loop-through and supervision
- 32 control inputs on removable Euro-style screw terminals
- 16 control outputs on removable Euro-style screw terminals

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE DOP
	CPD
	GL
Poland	CNBOP

Parts included

Quantity	Component
1	PRS-16MCI Multichannel Interface
1	Set of mounting brackets for 19” rack
1	Set of connectors

Technical specifications

Electrical

Power consumption	12 W (DC)
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Total harmonic distortion	<0.1% (1 kHz)
Cross talk	<-80 dB (1 kHz)
S/N	>85 dB (without pilot tone)
Line input	1 x
Connector	XLR bypass
Line output	1 x
Connector	XLR loop-through

Line output	16 x
Connectors	RJ45 jack (in pairs)
	0 dBV (symmetrical)
Control inputs	32 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	16 x
Connectors	Removable screw terminals
Operation	Change over contact (SPDT) voltage free relay
Rating	24 V, 1 A

Mechanical

Dimensions (H x W x D) rack with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lb)
Mounting	19” rack
Color	Charcoal with silver

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-16MCI Multichannel Interface
Interface to Praesideo network, provides 16 audio outputs with control and supervision to non-network connected basic amplifiers, powered from the Praesideo network or the connected amplifiers, rack unit 2 RU.
Order number **PRS-16MCI**

LBB 4430/00 Call Station Basic

Features

- Redundant network connection
- Power ‘ON’ indication
- Status/fault indications
- Indication that the priority level of destinations is higher than that of the pending announcement
- Supervision of microphone capsule

The call station basic can make manual or pre-recorded announcements to any pre-assigned zones. The call station basic has a microphone on a flexible stem, a push-to-talk button, a speaker, and a headset socket.
The LBB 4430/00 can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight programmable keys. Extension with a numeric keypad (PRS-CSNKP) is also possible.

Functions

The call station has a cardioid, supervised microphone on a gooseneck stem with good speech intelligibility. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing can include sensitivity adjustment, limiting, and parametric equalization.

Up to 16 call station keypads can connect to the station via a serial communication link. The station provides the power for the keypads. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The call station is fully supervised and supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

- Three status LEDs
- Configurable PTT-key
- Volume control for loudspeaker/headset

Interconnections

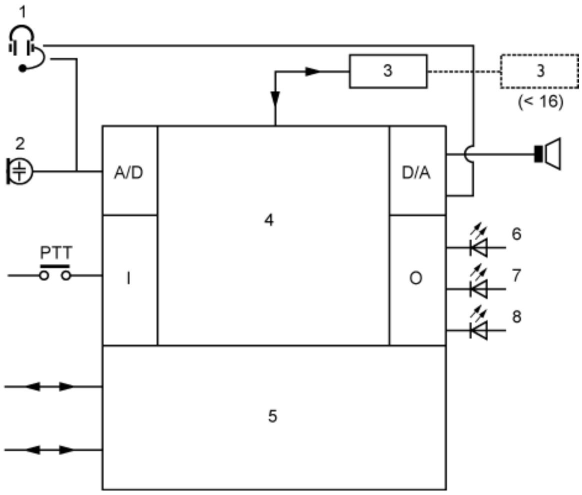
- Two system network connections
- Serial data and power supply interface for call station keypads
- 3.5 mm jack for headset

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL
Poland	CNBOP

Installation/configuration notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status

8	Network status
9	Network connections

Parts included

Quantity	Component
1	LBB 4430/00 Call Station Basic
1	Flat cable

Technical specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	4.4 W (DC) excluding keypads
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
S/N	>60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
S/N	80 dB at max. output
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Connector	3.5 mm jack
Recommended type	Hosiden HBH 0058

Mechanical

Dimensions (H x W x D)	90 x 160 x 200 mm
Weight	0.95 kg (2.1 lb)
Mounting	Tabletop
Color	Charcoal
Length of mic stem	380 mm

Environmental

Operating temperature	-5 ºC to +45 ºC (+23 ºF to +113 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4430/00 Call Station Basic
Call station with microphone on a flexible stem, push-to-talk button and monitoring loudspeaker, powered from Praesideo network.
Order number **LBB4430/00**

Accessories

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

LBB 4434/00 Call Station Keypad Kit
PCB to extend a custom call station with 8 programmable buttons and status indicators, up to 16 keypad kits can be connected to a call station.
Order number **LBB4434/00**

PRS-CSNKP Numeric Keypad
Call station numeric keypad and LCD for controlled user access and zone selection in large systems, can be combined with call station keypads.
Order number **PRS-CSNKP**

LBB 4432/00 Call Station Keypad

Features

- Eight freely programmable selection keys
- Serial data and power interface to call station basic
- Up to 16 keypads can be connected to one call station basic
- Activation indicator for each key
- Stylish and modern design

The call station keypad is used in combination with the call station basic to make manual or pre-recorded announcements to any assigned zones, to select the zones or to execute pre-defined actions. The call station keypad has eight programmable buttons, each with a two-color status LED.

Functions

The keys of the call station keypad can be programmed for actions, such as:

- Controlling functions: selection recall, call activation, cancel selection, BGM off, BGM volume control, fault acknowledgement, etc.
- Selecting sources: BGM channel, pre-recorded messages, attention and alarm tones
- Selecting destinations: zones and zone groups

The keys can be programmed for different modes of operation, such as momentary or toggle. Each key has one two-color status LED beside it. Beside each LED is a transparent, removable tab that can hold a function or zone label for the key. Safety covers to prevent accidental activation of the keys are available as an option.

The keypad gets its power from the call station it is connected to.

Controls and indicators

- Eight function keys
- Eight two-color LEDs

Interconnections

- Two serial data and power connections

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	
Poland	CNBOP	

Parts included

Quantity	Component
1	LBB 4432/00 Call Station Keypad
1	Flat cable
1	Coupling bracket
1	Set of text labels

Technical specifications

Electrical

Power consumption	1.5 W (DC)

Mechanical

Dimensions (H x W x D)	70 x 95 x 200 mm (2.8 x 3.7 x 7.9 in)
Weight	0.3 kg (0.7 lb)
Mounting	Bracket attachment to a call station or other keypad
Color	Charcoal

Environmental

Operating temperature	-5 ºC to +45 ºC (+23 ºF to +113 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

Accessories

LBB 4436/00 Set of Key Covers (10 pcs)
Key covers to prevent accidental key presses on LBB4432/00 keypad buttons (set of 10 pieces).
Order number **LBB4436/00**

PRS-CSNKP Numeric Keypad

Features

- Numeric keypad for zone selection and user access
- Serial data and power interface to call-station basic
- Can be combined with normal call-station keypads
- LCD for user feedback
- Stylish and modern design

The Call-Station Numeric Keypad is used in combination with a basic or remote call-station. The call-station provides the microphone and press-to-talk key, while the numeric keypad can be used for user access, zone and zone group selection. It works together with call-station keypads for pre-configured actions. The built-in LCD provides feedback to the user.

Functions

The call-station numeric keypad has a 12-key numeric keypad, providing a telephone-like user interface with *, # and 0...9 keys. A single numeric keypad connects directly to a basic or remote call-station and subsequently up to 15 other keypads can be linked for controlling functions. It is mechanically fixed to the call-station. The numeric keypad can be configured for the following functions:

- User access to the call-station with user number and PIN, configurable for multiple users, with time-out and manual lock
- Selecting zones and zone groups as destinations for calls; up to eight zones and/or zone groups can be entered into a string.

The LCD gives feedback to the user about the selections and the status of the selected zones and zone groups. The keypad gets its power supply from the connected call-station. It is configured via the Preasideo network controller (web browser interface).

Controls and indicators

- 12 numeric keys
- 2 x 16 character LCD with backlight
- LCD brightness adjustment
- LCD contrast adjustment

Interconnections

- Flat-cable connection to call-station
- Flat-cable connection to next keypad

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL

Parts included

Quantity	Component
1	PRS-CSNKP Numeric Keypad
1	Flat-cable
1	Coupling bracket

Technical specifications

Electrical

Power consumption	1.8 W (DC)

Mechanical

Dimensions (H x W x D)	70 x95 x 200 mm (2.8 x 3.7 x 7.9 in)
Weight	0.4 kg (0.9 lb)
Mounting	Bracket attachment to a call-station or other keypad
Color	Charcoal

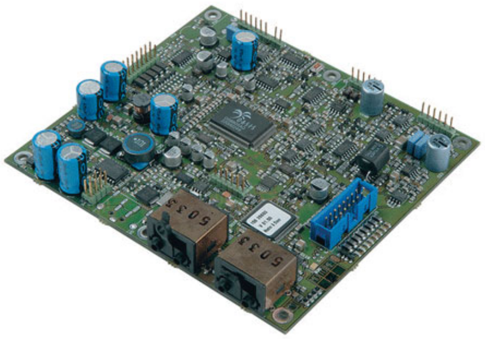
Environmental

Operating temperature	-5 °C to +45 °C (+23 °F to +113 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Relative humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-CSNKP Numeric Keypad
Call station numeric keypad and LCD for controlled user access and zone selection in large systems, can be combined with call station keypads.
Order number **PRS-CSNKP**

LBB 4433/00 Call Station Kit



Features

- Redundant network connection
- Power ‘ON’ outputs
- Status/fault outputs
- Output for a monitoring loudspeaker
- Priority indication of busy target zones

The call station kit is used to make custom-made call stations, with the same functionality as the LBB 4430/00 Call Station Basic. The call station contains a built-in limiter and speech filter for improved intelligibility. An external power supply can be connected to the call station kit. Two supervised control inputs provide power supply status information.
The LBB 4433/00 can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight programmable keys. Extension with a numeric keypad (PRS-CSNKP) is also possible.

Functions

The call station kit has a limiter and a speech filter. This improves intelligibility and prevents clipping of the audio. A potentiometer for volume control of the monitoring speaker and the headset can be connected. When it plays a chime or a pre-recorded message, the call station activates its speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing includes sensitivity adjustment, limiting, and parametric equalization.

Up to 16 call station keypads can connect to the station via a serial communication link. The call station provides the power for the keypads. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The call station kit is fully supervised and supports failsafe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

These must be supplied by the installer.

Interconnections

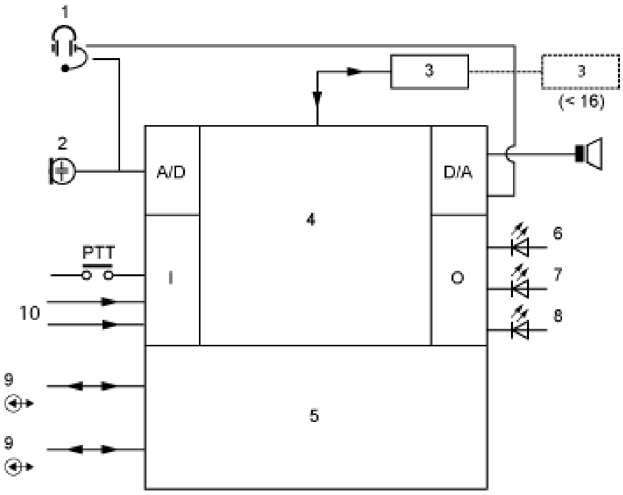
- Two network connectors (system bus)
- Backup supply input and 2 control inputs
- Serial data and power supply interface for call station keypads
- Microphone
- Loudspeaker
- Headset
- Volume control for loudspeaker/headset
- Control input (for PTT)
- Five control outputs (for status LEDs)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	GL

Installation/configuration notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status
8	Network status
9	Network connections
10	Control inputs

Parts included

Quantity	Component
1	LBB 4433/00 Call Station Kit
1	Set of connectors

Technical specifications

Electrical

Power consumption	6.2 W (DC) excl. indicators and keypads
Mic input	1 x
Sensitivity	-57 to -42 dBV
S/N	>60 dB at -48 dBV
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker output	1 x
S/N	80 dB ±3 dB at max.
Impedance	8 to 32 ohm
Power	100 mW typ., 300 mW max.
Headset	1 x
Impedance	0.5 to 5 kohm
Input sensitivity	-57 to -42 dBV/Pa (±3 dB)
Earphone impedance	>16 ohm
Status outputs	5 x open collector / drain
Max. current (internal)	10 mA per pin; 30 mA total
Max. voltage	56 V per pin
Max sink current	100 mA per output pin
Control inputs	2 x closing contact (with supervision)

Mechanical

Dimensions (H x W x D)	20 x 130 x 118 mm (0.8 x 5.1 x 4.6 in)
Weight	120 g (0.26 lb)
Mounting	PCB with 6 mounting holes

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4433/00 Call Station Kit
PCB for custom call station with connections for microphone, push-to-talk button and monitoring loudspeaker, powered from Praesideo network.
Order number **LBB4433/00**

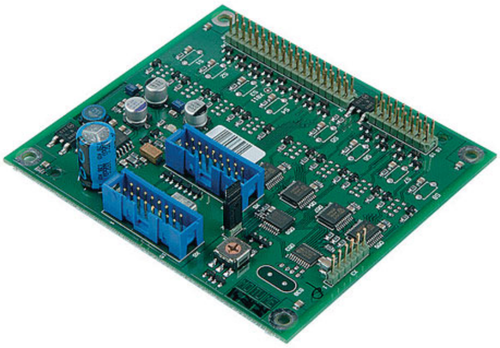
Accessories

LBB 4434/00 Call Station Keypad Kit
PCB to extend a custom call station with 8 programmable buttons and status indicators, up to 16 keypad kits can be connected to a call station.
Order number **LBB4434/00**

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

PRS-CSNKP Numeric Keypad
Call station numeric keypad and LCD for controlled user access and zone selection in large systems, can be combined with call station keypads.
Order number **PRS-CSNKP**

LBB 4434/00 Call Station Keypad Kit



Features

- Eight programmable control inputs linked to 16 outputs
- Two serial interfaces to call stations or other keypads
- Up to 16 keypads can be connected to one call station

The call station keypad kit is used in combination with a call station kit or call station basic to make manual or pre-recorded announcements to any assigned zones, or to execute pre-defined actions. It is functionally equivalent to the LBB 4432/00 Call Station Keypad. One of the main applications is the development of fireman's panels. However, since the call station keypad has eight programmable input connections, each with two associated output connections; it is well suited for other control applications.

Functions

The key inputs of the kit can be programmed for actions such as:

- Controlling functions: selection recall, call activation, cancel selection, BGM off, BGM volume control, fault acknowledgement, etc.
- Selecting sources: BGM channel, pre-recorded messages, attention and alarm tones
- Selecting destinations: zones and zone groups

Each key input of the PCB has two functionally related outputs designed to drive a two-color LED, but which can be used for other purposes. Once a control input is used for a function, the two control outputs will be linked to the specific action. Call macros can also be assigned to inputs.

The PCB also has interfaces for serial connections to a call station or other keypads. The keypad gets its power from the call station, it is connected to. The key inputs can be programmed for different modes of operation, such as momentary or toggle.

Interconnections

- Eight control inputs
- 16 control outputs
- Two serial data and power connections

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	GL

Parts included

Quantity	Component
1	LBB 4434/00 Call Station Keypad Kit
1	Flat cable
1	Set of connectors

Technical specifications

Electrical

Power consumption	1.2 W (DC) excl. indicators
Control inputs	8 x
Max. current	0.5 mA
Max. voltage	3.3 V (with 10 kohm pull-up)
Control outputs	8 x 2 open collectors
Max. current	100 mA
Max. voltage	30 V

Mechanical

Dimensions (H x W x D)	20 x 90 x 100 mm (0.8 x 3.5 x 3.9 in)
Weight	55 g (0.12 lb)
Mounting	PCB with 4 mounting holes

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4434/00 Call Station Keypad Kit
PCB to extend a custom call station with 8 programmable buttons and status indicators, up to 16 keypad kits can be connected to a call station.
Order number **LBB4434/00**

PRS-CSI Call Station Interface

Features

- ▶ Connects a remote call station to the Praesideo network via CAT-5 cable (up to 1 km)
- ▶ Powered by the Praesideo network and/or local power supply
- ▶ Two supervised control inputs
- ▶ Built-in DSP for audio processing functions
- ▶ Complete supervision of the unit

The PRS-CSI is an interface between a single remote call station, PRS-CSR, or a remote call station kit, PRS-CSRK, and the fiber optical Praesideo network. It uses CAT-5 cable for the connection to the remote call station. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network, especially in cases, where the call station is located far from the rest of the system.

The call station interface can get its power from the Praesideo network, and/or from a local power supply. It is fully supervised.

Functions

The interface can connect a single PRS-CSR remote call station or PRS-CSRK remote call station kit to a Praesideo system with up to 1 km of CAT-5 cable.
The interface is fully digital, supporting high-quality sound with a built-in DSP for audio processing of the remote call station. It supports complete supervision of itself, the call station, and the connection, as well as of two control inputs. It supports the fail safe mode of remote call stations, allowing them to put through emergency calls, even if the network controller fails. The unit is configured via the network controller.

Controls and indicators

- Two LED indicators for power and network status
- Two jumpers (below cover) to separate power supply of call station interface and remote call station

Interconnectors

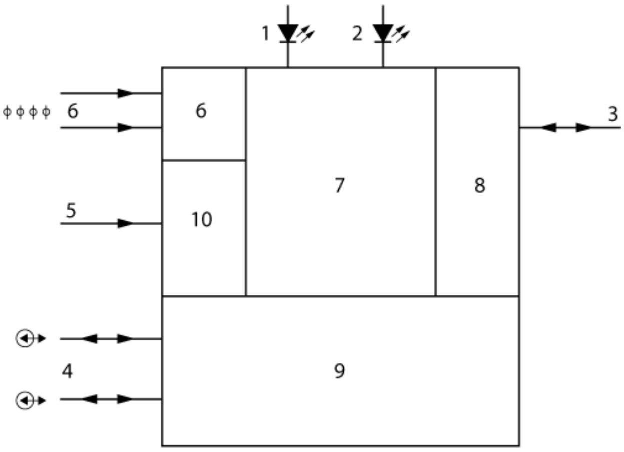
- Two Praesideo network connectors
- RJ45 connector for CAT-5 connection
- Kycon type (lockable) connector for power and two control inputs

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	**Certification**
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL

Installation/configuration notes



1	Fault LED
2	Power LED
3	CAT-5
4	POF
5	External (back-up) power 18-56 V
6	Control inputs
7	Network processor and DSP
8	UTP interface
9	Network redundancy switching
10	Power supply

Parts included

Quantity	Component
1	PRS-CSI Call Station Interface
1	Power supply connector

Technical specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	3.7 W
Control inputs	2 x
Operation	Closing contact (with supervision)

Mechanical

Dimensions (H x W x D)	27 x 243 x 80 mm without bracket (1.1 x 9.6 x 3.1 in) 34 x 243 x 84 mm with bracket (1.3 x 9.6 x 3.3 in)
Weight	0.7 kg (1.5 lb)
Mounting	Bracket (2 screws)
Color	Charcoal

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-CSI Call Station Interface
Compact unit with mounting clamp, interface between Praesideo network and a remote CAT-5 connected call station up to 1000 m away, powered from Praesideo network.
Order number **PRS-CSI**

Accessories

PRS-CSR Call Station Remote
Call station for remote locations with microphone on a flexible stem, push-to-talk button, monitoring loudspeaker, to be connected to a PRS-CSI via a CAT-5 cable.
Order number **PRS-CSR**

PRS-CSRK Call Station Remote Kit
PCB for custom remote call station, connections for microphone, push-to-talk button, monitoring loudspeaker, to be connected to a PRS-CSI via a CAT-5 cable.
Order number **PRS-CSRK**

PRS-CSR Call Station Remote

Features

- Connects to call station interface via CAT-5 cable
- Up to 1 km from Praesideo optical network
- Uses standard Praesideo keypads for extension
- Built-in limiter
- Powered via CAT-5 and/or local power supply

The PRS-CSR is a call station with the same functionality as the basic call station, LBB 4430/00, but it uses CAT-5 cable for its connection to the Praesideo network. It connects, one-to-one, to the call station interface, PRS-CSI, which is part of the Praesideo optical network. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network.
The PRS-CSR can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight programmable keys. Extension with a numeric keypad (PRS-CSNKP) is also possible.

Functions

The call station has a cardioid, supervised microphone on a gooseneck stem with good speech intelligibility. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker.

The remote call station connects via a CAT-5 cable to an PRS-CSI unit, which interfaces it to the Praesideo optical network. The call station gets its power from the interface unit via the CAT-5 cable, but is also equipped with a local power supply connection for extreme cases with a very long cable and many keypads.

Up to 16 call station keypads can connect to the station via a serial communication link. The call station provides the power for the keypads. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The remote call station is fully supervised and supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Controls and indicators

- Three status LEDs
- Configurable PTT-key
- Volume control for loudspeaker/headset

Interconnections

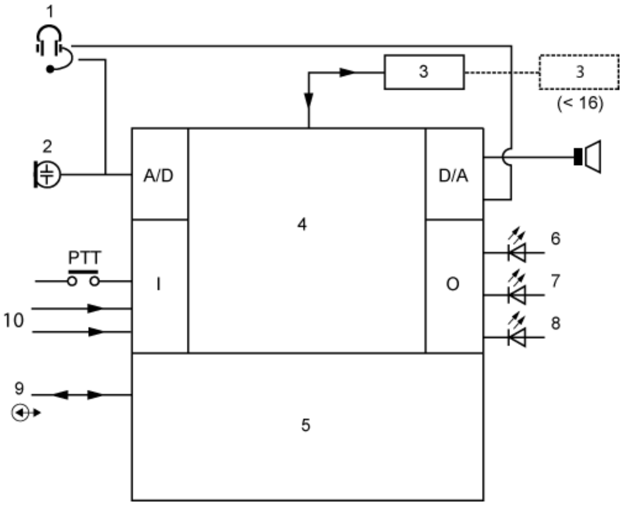
- RJ45 connector for CAT-5 connection
- Serial data and power supply interface for call station keypads
- Kycon type (lockable) connector for power and two control inputs
- 3.5 mm jack for headset/headphone

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	

Installation/configuration notes



1	Headset
2	Microphone
3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status (two-color)
8	Network status
9	Data connection (CAT-5)
10	Control input

Parts included

Quantity	Component
1	PRS-CSR Call Station Remote
1	Flat cable

Technical specifications

Electrical

External power supply	18 to 56 VDC
Power consumption	3.3 W at 48 V without keypads
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
S/N	> 60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
S/N	80 dB at max.
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Connector	3.5 mm jack
Recommended type	Hosiden HBH 0058
Control inputs	2 x
Operation	Closing contact (with supervision)

Mechanical

Dimensions (H x W x D)	90 x 160 x 200 mm (3.5 x 6.3 x 7.9 in)
Length of goose neck	380 mm (15 in)
Weight	1 kg (2.2 lb)
Mounting	Standalone
Color	Charcoal

Environmental

Operating temperature	-5 ºC to +45 ºC (+23 ºF to +113 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-CSR Call Station Remote
Call station for remote locations with microphone on a flexible stem, push-to-talk button, monitoring loudspeaker, to be connected to a PRS-CSI via a CAT-5 cable.
Order number **PRS-CSR**

Accessories

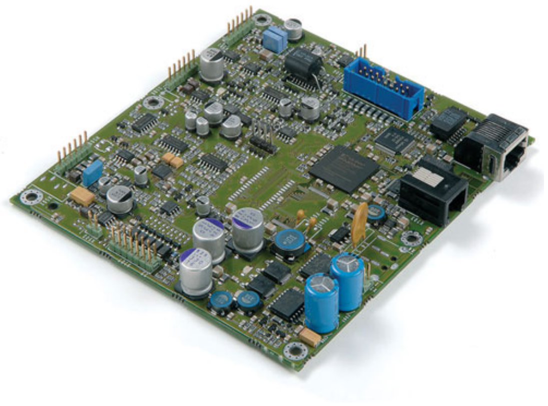
PRS-CSI Call Station Interface
Compact unit with mounting clamp, interface between Praesideo network and a remote CAT-5 connected call station up to 1000 m away, powered from Praesideo network.
Order number **PRS-CSI**

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

LBB 4434/00 Call Station Keypad Kit
PCB to extend a custom call station with 8 programmable buttons and status indicators, up to 16 keypad kits can be connected to a call station.
Order number **LBB4434/00**

PRS-CSNKP Numeric Keypad
Call station numeric keypad and LCD for controlled user access and zone selection in large systems, can be combined with call station keypads.
Order number **PRS-CSNKP**

PRS-CSRK Call Station Remote Kit



Features

- Connects to call station interface via CAT-5 cable
- Up to 1 km from Praesideo optical network
- Uses standard Praesideo keypads for extension
- Built-in limiter
- Powered via CAT-5 and/or local power supply

The PRS-CSRK is a PCB with the same functionality as the remote call station, PRS-CSR, but without its housing and other components. It is for the construction of custom applications. It connects via a CAT-5 cable, one-to-one, to the call station interface, PRS-CSI, which is part of the Praesideo optical network. The CAT-5 cable, carrying digital audio and control data, can be as long as 1 km. The length of the CAT-5 cable is not a part of the Praesideo optical network length. This considerably increases the overall possible length of the optical network.

The PRS-CSR can be extended with up to 16 keypads (LBB 4432/00 or LBB 4434/00), each with eight configurable keys. Extension with a numeric keypad (PRS-CSNKP) is also possible.

Functions

The call station has a connection for a supervised microphone. A limiter and a speech filter improve intelligibility and prevent clipping of the audio. It has a volume control for the monitoring speaker and the headset. When it plays a chime or a pre-recorded message, the call station activates its speaker. When a headset is connected, it replaces the microphone and speaker. The call station has its own DSP, and converts between analog and digital audio. The audio processing can include sensitivity adjustment, limiting, and parametric equalization.

The kit connects via a CAT-5 cable to an PRS-CSI unit, which interfaces it to the Praesideo optical network. The cable can be up to 1 kilometer long. The station gets its power from the interface unit via the CAT-5 cable, but is also equipped with a local power supply connection for extreme cases with a very long cable and many keypads.

Up to 16 call station keypads can connect to the station via a serial communication link. The call station provides the power for the keypads. Up to 224 priorities can be assigned to the call station. All configuration can be done via the Praesideo network controller.

The remote call station is fully supervised and supports fail-safe operation. Even if the Praesideo network controller fails, the call station is still able to put through emergency calls.

Interconnections

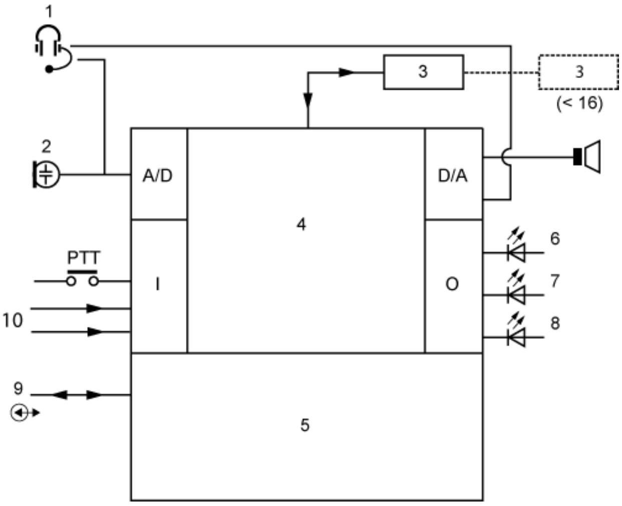
- External power supply input and 2 control inputs
- Serial data and power supply interface for call station keypads
- Microphone
- Loudspeaker
- Headset
- Volume control for loudspeaker/headset
- Control input (for PTT)
- Three control outputs (for status LEDs)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	GL

Installation/configuration notes



1	Headset
2	Microphone

3	Keypad(s)
4	Network processor and DSP
5	Network redundancy switching
6	Power/error
7	Call station status (two-color)
8	Network status
9	Data connection (CAT-5)
10	Control input

Parts included

Quantity	Component
1	PRS-CSRK Call Station Remote Kit
1	Set of connectors

Technical specifications

Electrical

Power consumption	4 W at 48 V without keypads
External power supply	18 to 56 VDC
Microphone	
Nominal acoustic input level	75 to 90 dB SPL
SNR	> 60 dB at 85 dB SPL
Frequency response	340 Hz to 14 kHz (-3 dB)
Loudspeaker	
SNR	80 dB at max.
Sound pressure level	85 dB (SPL) at 0.5 m and 1 kHz
Headset	
Impedance	0.5 to 5 kohm
Input sensitivity	-57 to -42 dBV/Pa (±3 dB)
Earphone impedance	>16 ohm
Status outputs	5 x open collector / drain
Max. current (internal)	10 mA per pin; 30 mA total
Max. voltage	56 V per pin
Max sink current	100 mA per output pin
Control inputs	2 x
Operation	Closing contact (with supervision)

Mechanical

Dimensions (H x W x D)	20 x 130 x 118 mm (0.8 x 5.1 x 4.6 in)
Weight	120 g (0.26 lb)
Mounting	PCB 6 holes

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-CSRK Call Station Remote Kit
PCB for custom remote call station, connections for microphone, push-to-talk button, monitoring loudspeaker, to be connected to a PRS-CSI via a CAT-5 cable.
Order number **PRS-CSRK**

Accessories

PRS-CSI Call Station Interface
Compact unit with mounting clamp, interface between Praesideo network and a remote CAT-5 connected call station up to 1000 m away, powered from Praesideo network.
Order number **PRS-CSI**

LBB 4434/00 Call Station Keypad Kit
PCB to extend a custom call station with 8 programmable buttons and status indicators, up to 16 keypad kits can be connected to a call station.
Order number **LBB4434/00**

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

PRS-CSNKP Numeric Keypad
Call station numeric keypad and LCD for controlled user access and zone selection in large systems, can be combined with call station keypads.
Order number **PRS-CSNKP**

PRS-CRF Call Stacker

Features

- Records calls for automatic playback to previously occupied zones (call stacker)
- Acoustic feedback suppression by recording a call with delayed broadcast (time shifter)
- Possibility to monitor a call before broadcasting
- Records and/or plays back up to eight calls simultaneously
- Stores up to 16 calls

The Call Stacker is a small unit that records calls that cannot be sent to all required zones because some are occupied by a higher priority call. The unit can store up to 16 calls in high-quality format with a maximum of three minutes for each call, including chimes and pre-recorded messages. Playback of a call can start while it is still being recorded. The unit can record and/or playback up to eight calls simultaneously.
More units can be added to a system in order to increase the number of recordable calls. Units can be connected to the Praesideo network at any place.

Functions

The functions of the call stacker are configured as part of a call macro in Praesideo. Here it is configured whether a call will be recorded for playback later in case zones are occupied or the call is being overruled in some zones.
When these zones become available again, the call is automatically repeated to these remaining zones, to all at once or cascaded to each zone individually.
After a call is finished completely, it will be deleted from memory.
The unit has a configurable time-out period to delete outdated unsent calls.
The call stacker can also be used as time shifter to avoid acoustic feedback from a loudspeaker to the active microphone. The call is recorded and broadcast after the recording has finished. The call can be pre-monitored before broadcast with the option to cancel the call.
Time shifting and call stacking can be combined.
Logging of the call and all its playbacks is supported, but the recorded calls do not survive a power down and are not supervised, so the call stacker function should not be relied upon for emergency calls.
The unit is configurable via the Praesideo network controller (web browser interface).

Controls and indicators

- Two LED indicators for power and network status

Interconnections

- Two Praesideo network connectors
- RJ11 service connector (JTAG)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	

Parts included

Quantity	Component
1	PRS-CRF Call Stacker
1	Mounting bracket

Technical specifications

Electrical

Power consumption	4.2 W

Performance

Frequency response	20 Hz to 20 kHz (-3 dB)
S/N	> 85 dB
Crosstalk	<-85 dB

Mechanical

Dimensions (H x W x H)	
Without bracket	27 x 243 x 80 mm (1.1 x 9.6 x 3.1 in)
With bracket	34 x 243 x 84 mm (1.3 x 9.6 x 3.3 in)
Weight	0.7 kg (1.5 lb)

Mounting	Bracket (two screws)
Color	Charcoal

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Relative humidity	15 % to 90 %
Air pressure	600 to 1100 hPa

Ordering information

PRS-CRF Call Stacker
Compact unit with mounting clamp, provides a recording and playback function for up to 8 simultaneous calls for previously occupied zones or for pre-broadcast monitoring, can store up to 16 calls, powered from Praesideo network.
Order number **PRS-CRF**

PRS-1AIP1 IP Audio Interface

Features

- All-in-one solution for audio transport on IP-networks
- Supervised control inputs and outputs
- Supports re-broadcasting
- Configurable audio delay on the output for loudspeaker alignment
- Easy to install and configure via standard web-browser

The PRS-1AIP1 is a universal, IP-based audio device supporting VoIP and Audio over IP applications. It is an ideal solution for bridging audio and contact closures over long distance LAN and WAN networks, e.g. in shopping malls, tunnels, in and between railway stations. It extends and interfaces to Praesideo and non-network based traditional public address systems without the need for a PC during operation.
The unit has analog audio inputs and outputs for easy interfacing with optional pilot-tone supervision for emergency sound purposes. One audio input can be switched to microphone sensitivity with built-in microphone supervision. Also, the control inputs offer cable and connection supervision.
Control inputs and outputs can be used to set up an audio connection to start a remote call, but also to pass remote fault events to the system controller.

Functions

Audio

Multiple audio formats are supported: single channel, full duplex 16-bit PCM or G.711 for very low latency, and two-channel send or receive MP3 for high quality audio with various sample rates and compression settings.
The unit provides two balanced line inputs and two balanced line outputs. One of the inputs can be configured as balanced microphone input with a phantom power supply for electret / condenser microphones and microphone connection supervision. The output level is configurable.
Audio connection supervision using a 20 kHz pilot tone is supported, with detection on the audio input of the transmitter and regeneration on the audio output of the receiver.
A configurable audio delay can be used to artificially delay the playback of audio for loudspeaker alignment, e.g. in tunnels.

Audio Routing

Audio signals can be routed in uni-cast to up to 16 receivers, preconfigured or on activation of control inputs. Receivers are able to re-broadcast the incoming audio stream to other receivers. In case the interfaces are on the same LAN also broadcast is supported.
In PCM and G.711 (uLaw and aLaw) full duplex audio interfacing between two units is possible.

Control inputs and outputs

The unit has eight control inputs with configurable supervision on open and/or short-circuits. Eight control outputs have dry relay contacts. Control inputs can be routed to control outputs for remote actions or to pass on fault information between audio transmitter and receiver, in both directions. Control inputs can also be configured to change the audio routing.
An additional dry relay contact is provided for fault indication of the unit, including a high temperature fault situation.

Network Interfaces

The unit interfaces to 10 and 100 Mbit Ethernet networks and announces its IP-address that was given by a DHCP server. It can also search the network for a free IP-address or can be given a static IP-address. A second Ethernet connection is available to support network redundancy.
An RS 232 interface is build-in to communicate additional serial data over the IP network.

Power Supplies

Two power supply connections are provided as main input and backup input with supervision of both supplies.

Controls and Indicators (front)

- Reset button, recessed
- Two status indicator LEDs for network
- Eight status LEDs for control inputs

Interconnections (rear)

- Eight control inputs on Euro-connector
- Eight control outputs on Euro-connector
- Fault relay output on Euro-connector
- Two balanced audio inputs on Euro-connector (one line input, one line / microphone input)
- Two balanced audio outputs on Euro-connector
- Two Ethernet connections on RJ45
- RS 232 on Sub-D
- RS 485 on Euro-connector
- Main power supply on jack
- Backup power supply on Euro-connector

Certifications and approvals

Electromagnetic compatibility	EN55011:2009 (Limit Class: B) EN50130-4:1995 + A1:1998 + A2:2003
Electrical safety	IEC60065 (CB-scheme)
Approvals	CE marking EN54-16 (0560 - CPD - 10219002/AA/04)

Region	Certification
Europe	CE
	CE

Region	Certification
	CE
	CE DOP
	CPD

Parts included

Quantity	Component
1	PRS-1AIP1 IP Audio Interface
1	Power supply
1	Set of connectors

Technical specifications

Electrical

External power supply 1	18 to 56 VDC
External power supply 2	18 to 56 VDC
Power consumption	8 W max
Microphone input (Audio input 1)	
Sensitivity	-48.5 to -26 dBV
Impedance	1360 ohm
Frequency response	100 Hz to 15 kHz
S/N	>60 dB
Supervision detection	Electret: 0.4 – 5 mA Dynamic: 120 – 1300 ohm
Line Inputs (Audio input 1 and 2)	
Sensitivity	-16.5 to +6 dBV
Impedance	22 kohm
Frequency response	20 Hz to 15 kHz
S/N	>70 dB
Pilot tone detection level (Input 2 only)	-30 dBV
Line outputs (Audio output 1 and 2)	
Level	6 dBV max
Pilot tone level (Output 2 only)	-20 dBV (20 kHz)
Audio formats	
MPEG 1-layer 3 (MP3)	32, 44.1 and 48 kHz sample rate
	Encoding up to 192 kbps VBR
	Decoding up to 320 kbps (Stereo)
MPEG 1-layer 2	16, 22.05 and 24 kHz sample rate
G.711	uLaw, aLaw at 8, 24 or 32 kHz sample rate
PCM	16-bit at 8, 24 or 32 kHz sample rate
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control / fault outputs	8 x / 1 x
Connectors	Removable screw terminals
Operation	Make contact (SPST, voltage free)
Rating	24 V, 0.5 A
Ethernet 1 and 2	
Connector	Dual RJ45, DTE-pinout
Standard	802.3i / 802.3u
Speed	10 / 100 Mbps, auto-negotiation
Flow	Full / half-duplex, auto-negotiation
Protocol	TCP/IP, UDP, RTP, SIP, IGMP, DHCP, SNMP
RS 232 / RS 485	
Connector RS 232	9-pin Sub-D male, DTE-pinout
Connector RS 485	Removable screw terminals
Pinout	300 to 115.200 Baud
Setting (default)	9600, 8, N, 1

Mechanical

Dimensions (H x W x D)	216 x 38 x 125 mm(8.5 x 1.5 x 4.92 in) (half 19” wide)
Weight	0.7 kg (1.5 lb)
Mounting	Stand-alone or in 19”-rack with additional frame
Color	Silver with Charcoal

Environmental

Operating temperature	-5 °C to +50 °C (+23 °F to +122 °F)
Start-up temperature	0 °C to +50 °C (+32 °F to +122 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Humidity	15 to 90 %
Air pressure	600 to 1100 hPa

Ordering information

PRS-1AIP1 IP Audio Interface
Compact bi-directional 1 or 2 channel interface for supervised audio with RS232/485 tunnel and GPIO.
Order number **PRS-1AIP1**

LBB 4402/00 Audio Expander

Features

- ▶ Four audio inputs – two selectable mic/line and two line inputs
- ▶ Four line audio outputs
- ▶ Eight supervised control inputs and five control outputs
- ▶ Audio processing functions
- ▶ Redundant network connection

The audio expander inserts external audio into the system and extracts audio from the system. This unit has control inputs and outputs for external interfacing. It can route its audio inputs permanently or conditionally to any of the zones or to other audio outputs. The routing conditions are configured using the configuration software. The audio output can be programmed to get its signal from any of the audio inputs. The equipment can be used freestanding (tabletop) or in a 19" rack.

Functions

The audio expander has four transformer isolated analog audio inputs. Two of these are selectable between microphone and line. The other two inputs are fixed line inputs. The expander has four transformer isolated analog audio line outputs. It has built-in digital audio processing capable of three parametric and two shelving equalizer sections for all audio in and outputs. They also have a selectable 20 kHz monitoring signal. The 2 x 16-character display and the rotary control enable local status enquiries.
The display shows the VU-meter reading when audio monitoring mode is active. Audio can also be monitored by using a headphone.
The eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Each control input has the ability to monitor the attached line for open and short-circuits. Five control outputs are freely programmable for faults and call-related actions.
The audio expander supports redundant network cabling. The network can be either single branch or redundant loop. The unit is powered from the network controller via the network cable. The expander is self-monitoring and continuously reports its status to the network controller.

Controls and Indicators

- Two x 16-character LCD status display
- Rotary/push control for menu control and headphone volume

Interconnections

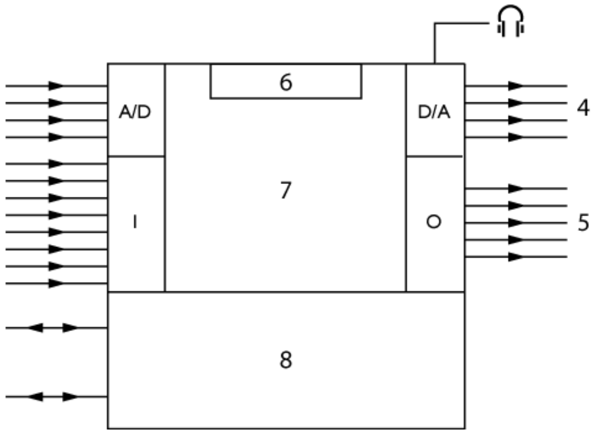
- Two system network connections
- Eight control inputs
- Two mic/line inputs
- Two line inputs
- Four line outputs
- Five control outputs
- Headphone output

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL
Poland	CNBOP

Installation/configuration notes



1	Audio inputs
2	Control inputs
3	Plastic optical fiber network
4	Audio outputs
5	Control outputs
6	Display and control
7	Network processor and DSP
8	Network redundancy switching

Parts included

Quantity	Component
1	LBB 4402/00 Audio Expander
1	Set of mounting brackets for 19” rack
1	Set of feet
1	Set of connectors

Technical specifications

Electrical

Power consumption	9 W (DC)
Performance	
Frequency response	20 Hz to 20 kHz (-3 dB)
Line inputs	2 x
Connectors	3-pin XLR and 2 cinch (for each line)
S/N	>87 dBA at maximum level
CMRR	>40 dB
Input range	+6 dBV to +18 dBV (XLR) -6 dBV to +6 dBV (cinch)
Mic / line inputs	2 x
Connector	3-pin XLR and 2 cinch (for each line)
Nominal Input Level	-57 dBV
S/N	>62 dBA with 25 dB headroom
CMRR	>55 dB at 100 Hz
Input Impedance	1360 ohm
Phantom supply	12 V ±1 V at 15 mA
Input range	-7 dB to 8 dB ref nominal input level
Line outputs	4 x
Connectors	XLR and 2 cinch (for each line)
Output Impedance	<100 ohm
S/N	>89 dBA at maximum level
Crosstalk	<-85 dB
Signal range	-12 dBV to +18 dBV (XLR) -24 dBV to +6 dBV (cinch)
Distortion at 1 kHz	<0.05%
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	5 x
Connectors	Removable screw terminals

Mechanical

Dimensions (H x W x D)	
for tabletop, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19” rack, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	7 kg (15.4 lbs)
Mounting	Tabletop, 19”-rack
Color	Charcoal (PH 10736) with silver

Environmental

Operating temperature	-5 °C to +55 °C (23 °F to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4402/00 Audio Expander
Audio expander, provides 4 audio inputs, 4 audio outputs, 8 control inputs, and 5 control outputs to a Praesideo system, powered from Praesideo network, rack unit 2 RU.
Order number **LBB4402/00**

LBB 4404/00 CobraNet Interface

Features

- Four CobraNet™ audio inputs
- Four CobraNet™ audio outputs
- Eight supervised control inputs and five control outputs
- Redundant Praesideo network connection
- Redundant CobraNet™ network connection

CobraNet™, developed by Peak Audio, is a network protocol for real-time uncompressed digital audio distribution over industry standard 100Base-T Ethernet networks. Typical applications are room coupling and audio distribution over long distances.

CobraNet™ audio channels can be configured as inputs to a Praesideo system, where they can be routed permanently or conditionally to any of the zones or audio outputs. The routing conditions are configured using the configuration software. Calls and background music (BGM) sources can be routed to CobraNet™ channels. Digital audio data is directly converted between an audio system and CobraNet™, with no other audio processing than sample rate conversion. Control inputs and outputs are provided for external interfacing. The equipment can be used free-standing (tabletop) or in a 19” rack.

CobraNet™ is a registered trademark of Peak Audio, a Division of Cirrus Logic, Inc.

Functions

The Praesideo CobraNet™ Interface can simultaneously interface up to four digital audio channels from CobraNet™ into an audio system and up to four audio channels from an audio system into a CobraNet™ network. This includes converting between the 44.1 kHz sample rate used by Praesideo, and the 48 kHz sample rate that CobraNet™ uses, as well as conserving volume levels. It can also route audio channels between itself and other CobraNet™ Interfaces, in the same or in other audio system networks, or to third party CobraNet™ units. Only audio channels are routed via the interface, not control data. This means that if units are used to link multiple systems, a PC master must always access the network controllers through their open interfaces for control purposes.

The eight control inputs are freely programmable for system actions, and priorities can be assigned to these inputs. Five control outputs are freely programmable for faults and call-related actions. Control inputs can also be programmed for momentary or toggle operation using the configuration software. Each control input has the ability to monitor the attached line for open and short-circuits.

The 2 x 16-character display and the rotary control enable local status enquiries. The display shows the VU-meter reading when the audio monitoring mode is active. Audio can be monitored by headphone.

The interface supports redundant network cabling of both an audio system and CobraNet™ networks. It gets its power from the network controller via the network cable. The unit is self-monitoring and continually reports its status to the network controller.

Controls and indicators

- 2 x 16 character LCD status display
- Rotary/push control for menu control and headphone volume

Interconnections

- Two optical network connections
- Two RJ45 Ethernet connectors for the CobraNet™
- Eight control inputs to enable audio inputs and audio outputs
- Five control outputs to indicate channel engaged state
- One headphone output 3.5 mm (0.14 in) stereo

Rear view

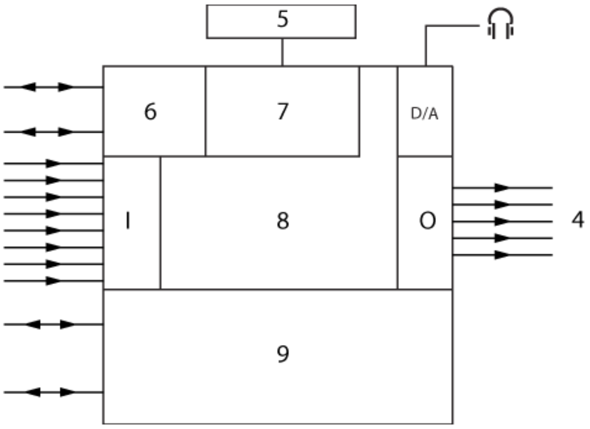
Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP

Region	Certification
	CPD
	GL

Installation/configuration notes



1	Ethernet network
2	Control inputs
3	Plastic optical fiber network
4	Control outputs
5	Display and control
6	CobraNetTM interface
7	Sample rate conversion
8	Network processor and DSP
9	Network redundancy switching

Parts included

Quantity	Component
1	LBB 4404/00 CobraNet Interface
1	Set of mounting brackets for 19" rack
1	Set of feet
1	Set of connectors

Technical specifications

Electrical

Supply voltage	24 to 48 VDC
Power consumption	11 W (DC)
Audio Transport	Ethernet
Channels	4 in / 4 out per interface Max 64 on CobraNet™
Compliance	IEEE 802.3
Audio Transport	16 / 20 / 24-bit
Sample Rate	48 kHz
Latency	5.33 ms
Integrity assurance	Watchdog
Control inputs	8 x
Connectors	Removable screw terminals
Operation	Closing contact (with supervision)
Control outputs	5 x
Connectors	Removable screw terminals

Mechanical

Dimensions (H x W x D)	
for tabletop, with feet	92 x 440 x 400 mm (3.6 x 17.3 x 15.7 in)
for 19" rack, with brackets	88 x 483 x 400 mm (3.5 x 19 x 15.7 in)
in front of brackets	40 mm (1.6 in)
behind brackets	360 mm (14.2 in)
Weight	6 kg (13.2 lbs)
Mounting	Tabletop, 19"-rack
Color	Charcoal (PH 10736) with silver

Environmental

Operating temperature	-5 °C to +55 °C (23 °F to +55 °F)
Storage temperature	-20 °C to +70 ° C (-4 °F to +158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4404/00 CobraNet Interface
CobraNet interface, converts 4 audio channels from Praesideo to CobraNet on standard 100Base-T Ethernet and 4 audio channels back, powered from Praesideo network, rack unit 2 RU.
Order number **LBB4404/00**

PRS-NSP Network Splitter

Features

- Two current-limited network tap-offs
- Supports redundant network connection on main loop
- Can feed power from an external supply to the network
- Indicators for power and fault status

The network splitter is used in a network to provide two branches from the main cable run. It can use an external DC power supply, or it can use the power supply from the network controller. The unit automatically switches to the local power supply unit when it is connected to it, reducing the power drain on the main network. The network splitter can also function as a repeater, effectively extending the length of the main network another 50 meters.

Functions

The splitter inserts Praesideo units connected to a tap-off into the main network, however without the redundancy of the main loop. The maximum current supplied for each of the two tap-offs is separately selectable. External power from the local supply is used only for the tap-offs, and is not fed into the main system cable. The network splitter has two LEDs for diagnostic purposes.

Controls and indicators

- Power status LED
- Fault status LED
- Jumpers to configure tap-offs power behavior

Interconnections

- Two system network connections for main network
- Two system network connection for network tap-offs
- External power supply input

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL

Parts included

Quantity	Component
1	PRS-NSP Network Splitter
1	Mounting bracket
1	Power supply connector

Technical specifications

Electrical

Power consumption	3.9 W (network)
External power supply	
Voltage	24 to 56 VDC, 48 VDC nominal
Current	2.5 A maximum (5 A peak <2 s)

Mechanical

Dimensions (H x W x D)	
Without bracket	27 x 243 x 80 mm (1.1 x 9.6 x 3.1 in)
With bracket	34 x 243 x 84 mm (1.3 x 9.6 x 3.3 in)
Weight	0.7 kg (1.5 lb)
Mounting	Bracket (two screws)
Color	Charcoal

Environmental

Operating temperature	-5 °C to +55 °C (+23 °F to +131 °F)
Storage temperature	-20 °C to +70 °C (-4 °F to +158 °F)
Relative humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

PRS-NSP Network Splitter
Compact unit with mounting clamp, provides 2 protected tap-off network outputs on the main Praesideo network, powered from Praesideo network, can accept external power supply.
Order number **PRS-NSP**

PRS-FIN, PRS-FINNA and PRS-FINS Fiber Interfaces

Features

- Redundant network connection
- Indicators for power and fault status
- Two supervised control inputs (not PRS-FINNA)
- Can use a local power supply

Most of the Praesideo system units have plastic fiber optic interfaces. Plastic fiber is used to interconnect nodes which are less than 50 meters apart. For distances of more than 50 meters, glass fiber optic cable is used. A fiber interface converts from plastic to glass fiber, and vice versa. The fiber interfaces have a power supply input to provide power to remote network sections, and two control inputs. The control inputs can pass on supervision information about the power supply connected to the fiber interface.

Functions

These units interface glass fiber optical cable with plastic fiber optical cable, and support redundant wiring topology. In many applications this is necessary, because glass fiber can bridge much longer distances than plastic fiber. Any conversion to glass fiber must be converted back to plastic fiber before other Praesideo units can be attached, since they all have plastic fiber interfaces. This means that these units are always used in pairs.
Each interface can use an external 48 VDC power supply to provide power for itself, as well as for remote parts of the network. If there is no external power source, the interface uses power from the network controller. The PRS-FIN and PRS-FINS have two control inputs. These can be used to accept e.g. the fault output of the external power supply (UPS), allowing the units to monitor the power supply and report faults to the network controller. The fiber interfaces have two LEDs for diagnostic purposes.

The PRS-FINNA is the same as the PRS-FIN except that it has no network node address. This has the advantage that the unit does not occupy one of the 60 possible addresses in the network. It also has the disadvantage that without an address, it is not possible to access the status of the two control inputs, as it is with the PRS-FIN.

The PRS-FINS is the same as the PRS-FIN, except that it accepts single-mode glass optical fiber instead of multi-mode glass optical fiber. However, this does not increase the maximum permitted cable length of a Praesideo network.

Controls and indicators

- Power status LED
- Network status LED

Interconnections

- Network connection for plastic optical fiber
- Network connection for glass optical fiber
- External power supply input
- Two control inputs (not PRS-FINNA)

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CPD

Installation/configuration notes

The PRS-FINNA and the PRS-FIN are often used in combination. The PRS-FINNA is placed in the local (POF) network, and connected to a (remote) PRS-FIN, which can then provide remote monitoring.
The PRS-FINS is mostly used in installations where single-mode (mono-mode) glass fiber is already present. Otherwise multi-mode glass fiber is a cheaper alternative.

Parts included

Quantity	Component
1	PRS-FIN Fiber Interface or PRS-FINNA Fiber Interface Non-Addressable or PRS-FINS Fiber Interface Single Mode
1	Mounting bracket
1	Control input connector
1	Power supply connector

Technical specifications

Electrical

Power consumption	4.6 W (DC)
External power supply	
Voltage	24 to 56 VDC, 48 VDC nominal
Current	2.5 A maximum (5 A peak <2 s)
Control inputs	2 x
Connector	Screw terminals
Operation	Closing contact (with supervision)
Glass optical fiber interface	
Connector (PRS-FIN and PRS-FINNA)	SC (Avago AFBR-5803Z transceiver)
Connector (PRS-FINS)	SC (Avago AFCT-5805BZ transceiver)
Wavelength	1300 nm
Cable type (PRS-FIN and PRS-FINNA)	62.5/125 µm or 50/125 µm multi-mode
Cable type (PRS-FINS)	9/125 µm single-mode

Mechanical

Dimensions (H x W x D)	
Without bracket	27 x 243 x 80 mm (1.1 x 9.6 x 3.1 in)
With bracket	34 x 243 x 84 mm (1.3 x 9.6 x 3.3 in)
Weight	0.7 kg (1.5 lb)
Mounting	Bracket (2 screws)
Color	Charcoal

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

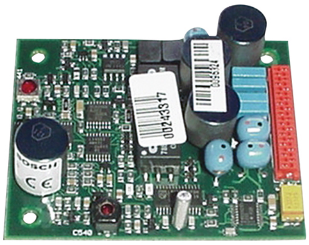
Ordering information

PRS-FIN Fiber Interface
Compact unit with mounting clamp, interface between Praesideo network and a multi-mode glass fiber interconnection to a second fiber interface, powered from Praesideo network.
Order number **PRS-FIN**

PRS-FINNA Fiber Interface Non-Addressable
Compact unit with mounting clamp, non-addressable interface between Praesideo network and a multi-mode glass fiber interconnection to a second fiber interface, powered from Praesideo network.
Order number **PRS-FINNA**

PRS-FINS Fiber Interface Single Mode
Compact unit with mounting clamp, interface between the Praesideo network and a single-mode glass fiber interconnection to a second fiber interface, powered from the Praesideo network.
Order number **PRS-FINS**

LBB 4440/00 Supervision Control Board



Features

- Multiple speaker and line monitoring without additional cabling
- Mounted inside the power amplifier
- Controls up to 80 speaker and line supervision boards
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines

The board controls the communication between the Praesideo system and the loudspeaker or loudspeaker line supervision boards.

The LBB 4440/00 is the supervision control board, monitoring multiple supervision-slave boards (LBB 4441/00 and LBB 4443/00), which are mounted inside the loudspeakers on the line. With these boards working together, it is possible to supervise 16, 64, or up to 80 loudspeakers or loudspeaker lines on a 500-watt amplifier.

Functions

Each amplifier channel in an LBB 442x/10 Power Amplifier unit has an internal mechanical and electrical provision for an LBB 4440/00 control board. Communication between the supervision boards takes place inaudibly over the loudspeaker line, requiring no additional wiring. The audio signals on the lines do not affect communication.

Monitoring can be switched on and off from the configuration software. The monitoring of the presence of supervisor boards is continuous. Loudspeaker faults are detected and reported within 300 s, and line faults are detected and reported within 100 s.

Interconnections
20-pin connector and flat cable

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	Declaration of Conformity
	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	
Poland	CNBOP	

Installation/configuration notes

The following power amplifiers have a provision for installing a supervision control board:

- LBB 4421/10
- LBB 4422/10
- LBB 4424/10
- PRS-1P500
- PRS-2P250
- PRS-4P125

Required loudspeaker line characteristics:

Preferred cable	Single twisted pair, 0.75 mm^2 to 1.5 mm^2
Maximum length	1 km (including branches, max. 300 m adjacent to other supervised loudspeaker cables)
Maximum loop resistance	38 ohm
Maximum inductance	750 µH
Minimum total loudspeaker impedance	50 ohm @ 70 kHz (independent of amplifier power)
Maximum capacity	300 nF
Maximum number of supervision boards per amplifier channel	80 @ 500 W 40 @ 250 W 20 @ 125 W
Loudspeaker voltage	70 V, 100 V

Notice
The use of multi-wire cables is not recommended in combination with line supervision, because crosstalk between audio channels may influence the line supervision.

Notice
If the maximum load capacity for the power amplifier output is less than 300 nF, the maximum load capacity of the power amplifier is leading.

Technical specifications

Mechanical

Dimensions (H x W x D)	60 x 50 x 17 mm without bracket (2.4 x 2.0 x 0.7 inch)
Weight	30 g (1 ounce)
Mounting	Internally in the power amplifier Plastic brackets for horizontal and vertical installation included

Environmental

Operating temperature	-5 °C to +55 °C (23 to 131 °F)
Storage temperature	-20 °C to +70 °C (-4 to 158 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

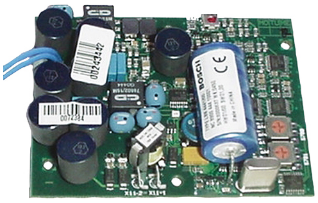
LBB 4440/00 Supervision Control Board
Line and loudspeaker supervision master PCB for mounting in a Praesideo network connected power amplifier, one board is needed per channel.
Order number **LBB4440/00**

Accessories

LBB 4441/00 Loudspeaker Supervision Board
Loudspeaker supervision slave PCB for mounting on a loudspeaker, operates with LBB4440/00 for monitoring the integrity of the loudspeaker.
Order number **LBB4441/00**

LBB 4443/00 End of Line (EOL) Supervision Board
Line supervision slave PCB for connecting to the end of a loudspeaker line or the end of a spur, operates with LBB4440/00 to monitor the integrity of the line.
Order number **LBB4443/00**

LBB 4441/00 Loudspeaker Supervision Board



Features

- Loudspeaker and loudspeaker line monitoring without additional cabling
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines
- Powering of the supervision-board from the power amplifier
- Communication is not affected by the audio signals on the loudspeaker line

The board monitors the integrity of a loudspeaker. It works together with the LBB 4440/00 Supervision Control Board. The speaker status is communicated to the LBB 4440/00 via the existing loudspeaker cable.

Functions

The LBB 4441/00 is mounted inside the loudspeaker casing and communicates the status of the loudspeaker to the LBB 4440/00 Supervision Control Board via the existing loudspeaker cable. The board detects and reports loudspeaker faults within 300 s, line faults within 100 s.

Interconnections

- Two 30 cm flying leads
- Two faston connectors

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification	
Europe	CE	
	CE	
	CE	
	CE	DOP
	CPD	
	GL	

Installation/configuration notes

The following loudspeakers have a provision for installing a supervision board:

Ceiling loudspeakers	Column loudspeakers	Sound projectors
LC1-WM06E	LBC 3210/00	LBC 3432/02
LC1-UM06E	LA1-UM20E-1	LS1-OC100E-1
LC1-UM12E	LA1-UM40E-1	
LC1-UM24E	**Horn loudspeakers**	
LBC 3510/40	LBC 3403/16	
LBC 3520/40	LBC 3404/16	
LBC 3530/40	LBC 3405/16	
Cabinet loudspeakers	LBC 3406/16	
LBC 3011/41	LH1-10M10E	
LBC 3011/51	LBC 3482/00	
LB1-UM06E-1	LBC 3483/00	
LBC 3018/01	LBC 3484/00	
LB1-UM20E-D/L	LH1-UC30E	
LB1-UM50E-D/L		
LB3-PC250		
LB3-PC350		

The board must be connected after the ceramic terminal block with the thermal fuse. In case of a fire, the thermal fuse will blow and disconnect the board from the loudspeaker line. The trip point of the thermal fuse that is connected to the ceramic block is lower than the melting point of the solder on the board to prevent short-circuits in the supervision board and the loudspeaker line.

When the loudspeaker does not contain a ceramic terminal block with a thermal fuse, use an LBC 1256/00 EVAC Connection Adapter

Technical specifications

Mechanical

Dimensions (H x W x D)	78 x 60 x 22 mm (3.0 x 2.3 x 0.8 in)
Weight	70 g (2.4 ounces)
Mounting	Internally in the loudspeaker An optional mounting bracket, LBB 4446/00 is available

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4441/00 Loudspeaker Supervision Board
Loudspeaker supervision slave PCB for mounting on a loudspeaker, operates with LBB4440/00 for monitoring the integrity of the loudspeaker.
Order number **LBB4441/00**

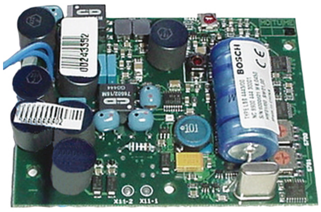
Accessories

LBB 4440/00 Supervision Control Board
Line and loudspeaker supervision master PCB for mounting in a Praesideo network connected power amplifier, one board is needed per channel.
Order number **LBB4440/00**

LBB 4446/00 Set of Supervision Board Brackets (10 pcs)
Aluminum brackets for mounting supervision slave boards in a loudspeaker cabinet or cable box (set of 10 pieces).
Order number **LBB4446/00**

PRS-16MCI Multichannel Interface
Interface to Praesideo network, provides 16 audio outputs with control and supervision to non-network connected basic amplifiers, powered from the Praesideo network or the connected amplifiers, rack unit 2 RU.
Order number **PRS-16MCI**

LBB 4443/00 End of Line (EOL) Supervision Board



Features

- Loudspeaker line monitoring without additional cabling
- Open-circuit fault detection
- Compatible with 100 V and 70 V loudspeaker lines
- Powering of the supervision-board from the power amplifier
- Communication is not affected by the audio signals on the line

The board monitors the integrity of a loudspeaker line. The boards work together with the LBB 4440/00 Supervision Control Board to monitor the status of the loudspeaker line and all of its branches. The line status is communicated to the LBB 4440/00 via the existing loudspeaker cable.

Functions

The board is mounted inside the case of the last loudspeaker on the loudspeaker line, or inside a separate case. Supervision of branched lines is possible. If a loudspeaker line has multiple branches, a separate LBB 4443/00 is required for the last loudspeaker in each branch. The board detects and reports line faults within 100 s.

Interconnections

- Two 30 cm flying leads
- Two faston connectors

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	CE
	CE
	CE DOP
	CPD
	GL
Poland	CNBOP

Installation/configuration notes

The following loudspeakers have a provision for installing a supervision board:

Ceiling loudspeakers	Column loudspeakers	Sound projectors
LC1-WM06E	LBC 3210/00	LBC 3432/02
LC1-UM06E	LA1-UM20E-1	LS1-OC100E-1
LC1-UM12E	LA1-UM40E-1	
LC1-UM24E	**Horn loudspeakers**	
LBC 3510/40	LBC 3403/16	
LBC 3520/40	LBC 3404/16	
LBC 3530/40	LBC 3405/16	
Cabinet loudspeakers	LBC 3406/16	
LBC 3011/41	LH1-10M10E	
LBC 3011/51	LBC 3482/00	
LB1-UM06E-1	LBC 3483/00	
LBC 3018/01	LBC 3484/00	
LB1-UM20E-D/L	LH1-UC30E	
LB1-UM50E-D/L		
LB3-PC250		
LB3-PC350		

Technical specifications

Mechanical

Dimensions (H x W x D)	78 x 60 x 22 mm (3.0 x 2.3 x 0.8 in)
Weight	70 g (2.4 ounces)
Mounting	Internally in the loudspeaker An optional mounting bracket, LBB 4446/00 is available

Environmental

Operating temperature	-5 ºC to +55 ºC (+23 ºF to +131 ºF)
Storage temperature	-20 ºC to +70 ºC (-4 ºF to +158 ºF)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4443/00 End of Line (EOL) Supervision Board
Line supervision slave PCB for connecting to the end of a loudspeaker line or the end of a spur, operates with LBB4440/00 to monitor the integrity of the line.
Order number **LBB4443/00**

Accessories

LBB 4440/00 Supervision Control Board
Line and loudspeaker supervision master PCB for mounting in a Praesideo network connected power amplifier, one board is needed per channel.
Order number **LBB4440/00**

LBB 4446/00 Set of Supervision Board Brackets (10 pcs)
Aluminum brackets for mounting supervision slave boards in a loudspeaker cabinet or cable box (set of 10 pieces).
Order number **LBB4446/00**

PRS-16MCI Multichannel Interface
Interface to Praesideo network, provides 16 audio outputs with control and supervision to non-network connected basic amplifiers, powered from the Praesideo network or the connected amplifiers, rack unit 2 RU.
Order number **PRS-16MCI**

LBB 4416/xx Network Cables

The network cables come in different lengths with connectors at both ends. The extension of the type number indicates the length of the cable. The LBB 4416/00 comes without connectors. The connectors (LBB 4417/00) are available for it separately.

Functions

LBB 4416 /01 /02 /05 /10 /20 /50
These are special cables with two plastic fibers for data communication and two copper cores for the power supply.

The cables all have the network connectors fitted. They connect the network controller to power amplifiers, audio expanders, call stations etc.

LBB 4416/00
This is a special cable with two plastic fibers for data communication and two copper cores for the power supply.

The cable is 100 meters long, and comes without network connectors. LBB 4417/00 connectors are fitted after the cable has been cut to the required length. It connects the network controller to power amplifiers, audio expanders, call stations etc.

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945
Flame retardant	acc. to IEC 60332-1 60s
Halogen level	acc. to IEC 60754-2 pH >4.3, conductivity <10 uS/mm
Smoke level	acc. to IEC 61034-2 light transmission >60%

Region	Certification
Europe	CE
	GL

Installation/configuration notes

The cables have the following lengths

LBB4416/00	100 m (without connectors)
LBB4416/01	0.5 m
LBB4416/02	2 m
LBB4416/05	5 m
LBB4416/10	10 m
LBB4416/20	20 m
LBB4416/50	50 m

Technical specifications

Electrical

Wire	Copper, stranded 1 mm^2
Resistance	<0.018 ohm/m

Optical

Fiber	PMMA, 1 mm
Numeric aperture	0.5
Attenuation	<0.17 dB/m @ 650 nm
Bending loss	<0.5 dB (r=20 mm, 90°) JIS C6861

Mechanical

Dimensions (diameter)	7 mm (0.28 in)
Color	Black
Pull force	150 N (max)

Environmental

Operating temperature	-40 °C to +65 °C (-40 °F to 149 °F)
Humidity	15% to 90%
Air pressure	600 to 1100 hPa

Ordering information

LBB 4416/00 Network Cable 100m
Praesideo hybrid network cable, 100 m without connectors for custom length cables, to be used with LBB4417/00 network connectors.
Order number **LBB4416/00**

LBB 4417/00 Set Network Connectors (20 pcs)
Praesideo network connectors, to be used with LBB4416/00 network cable for 10 custom length cables (set of 20 pieces).
Order number **LBB4417/00**

LBB 4418/00 Cable Connector Tool Kit
Case with special tools for manufacturing custom-length network cables.
Order number **LBB4418/00**

LBB 4416/01 Network Cable Assembly 0.5m
Praesideo hybrid network cable, 0.5 m length with network connectors.
Order number **LBB4416/01**

LBB 4416/02 Network Cable Assembly 2m
Praesideo hybrid network cable, 2 m length with network connectors.
Order number **LBB4416/02**

LBB 4416/05 Network Cable Assembly 5m
Praesideo hybrid network cable, 5 m length with network connectors.
Order number **LBB4416/05**

LBB 4416/10 Network Cable Assembly 10m
Praesideo hybrid network cable, 10 m length with network connectors.
Order number **LBB4416/10**

LBB 4416/20 Network Cable Assembly 20m
Praesideo hybrid network cable, 20 m length with network connectors.
Order number **LBB4416/20**

LBB 4416/50 Network Cable Assembly 50m
Praesideo hybrid network cable, 50 m length with network connectors.
Order number **LBB4416/50**

Accessories

LBB 4419/00 Cable Couplers (10 pcs)
Cable couplers, each coupler is used to connect 2 Praesideo network cables in series to increase the length to 30 m maximum (set of 10 pieces).
Order number **LBB4419/00**

LBB 4417/00 Set Network Connectors (20 pcs)

The set contains 20 connectors that can be used with the network cable LBB 4416/00 to make up to ten custom cables. The cable/connector toolkit LBB 4418/00 is required for assembly.

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	GL
Poland	CNBOP

Ordering information

LBB 4417/00 Set Network Connectors (20 pcs)
Praesideo network connectors, to be used with LBB4416/00 network cable for 10 custom length cables (set of 20 pieces).
Order number **LBB4417/00**

Accessories

LBB 4416/00 Network Cable 100m
Praesideo hybrid network cable, 100 m without connectors for custom length cables, to be used with LBB4417/00 network connectors.
Order number **LBB4416/00**

LBB 4418/00 Cable Connector Tool Kit

Parts included

Quantity	Component
1	Standard cutting pliers
1	Stripping pliers
1	Crimping pliers
1	Plastic optical fiber cutting/stripping tool
1	Plastic optical fiber positioning and indent tool
1	Torx screw driver
1	Spare cutting system

Ordering information

LBB 4418/00 Cable Connector Tool Kit
Case with special tools for manufacturing custom-length network cables.
Order number **LBB4418/00**

Accessories

LBB 4418/50 Spare Cutting System (2 pcs)
Replacement cutting systems for LBB4418/00 (set of 2 pieces).
Order number **LBB4418/50**

LBB 4418/50 Spare Cutting System (2 pcs)

This set contains two replacements for the plastic optical fiber cutting/stripping tool contained in LBB 4418/00.

Installation/configuration notes

After 1260 cuts, the cutter/stripping tool in the LBB 4418/00 blocks automatically. In that case, the cutting system must be replaced.

Ordering information

LBB 4418/50 Spare Cutting System (2 pcs)
Replacement cutting systems for LBB4418/00 (set of 2 pieces).
Order number **LBB4418/50**

LBB 4419/00 Cable Couplers (10 pcs)

Cable couplers are used to couple LBB 4416/xx network cable assemblies for extension.

Certifications and approvals

Safety	acc. to IEC 60065 / EN 60065
Immunity	acc. to EN 55103-2 / EN 50130-4 / EN 50121-4
Emissions	acc. to EN 55103-1 / FCC-47 part 15B
Emergency	acc. to EN 60849 / EN 54-16 / ISO 7240-16
Maritime	acc. to IEC 60945

Region	Certification
Europe	CE
	GL

Ordering information

LBB 4419/00 Cable Couplers (10 pcs)
Cable couplers, each coupler is used to connect 2 Praesideo network cables in series to increase the length to 30 m maximum (set of 10 pieces).
Order number **LBB4419/00**

LBB 4436/00 Set of Key Covers (10 pcs)

The key covers are snap-on replacements for the original lenses on an LBB 4432/00 Call Station Keypad that protect the keys from being accidentally pressed.

Parts included

Quantity	Component
10	Key covers
10	Replacement lenses

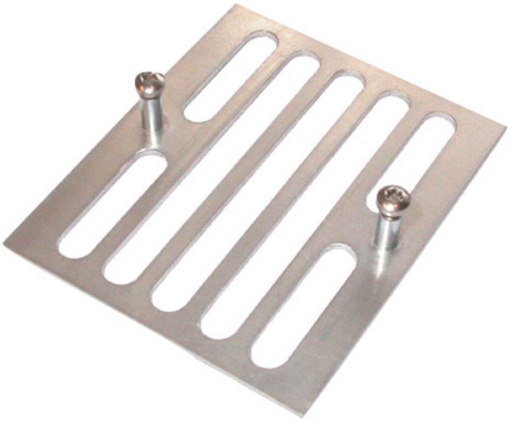
Ordering information

LBB 4436/00 Set of Key Covers (10 pcs)
Key covers to prevent accidental key presses on LBB4432/00 keypad buttons (set of 10 pieces).
Order number **LBB4436/00**

Accessories

LBB 4432/00 Call Station Keypad
Call station keypad with 8 programmable buttons and status indicators, up to 16 keypads can be connected to a call station.
Order number **LBB4432/00**

LBB 4446/00 Set of Supervision Board Brackets (10 pcs)



The supervision board brackets are intended for mounting LBB 4442/00 Supervision Slave Boards, LBB 4441/00 Loudspeaker Supervision Boards and LBB 4443/00 EOL Supervision Boards into or onto loudspeaker cabinets, or into junction boxes and equipment racks.

Parts included

Quantity	Component
10	Supervision Board Brackets

Ordering information

LBB 4446/00 Set of Supervision Board Brackets (10 pcs)
Aluminum brackets for mounting supervision slave boards in a loudspeaker cabinet or cable box (set of 10 pieces).
Order number **LBB4446/00**

Accessories

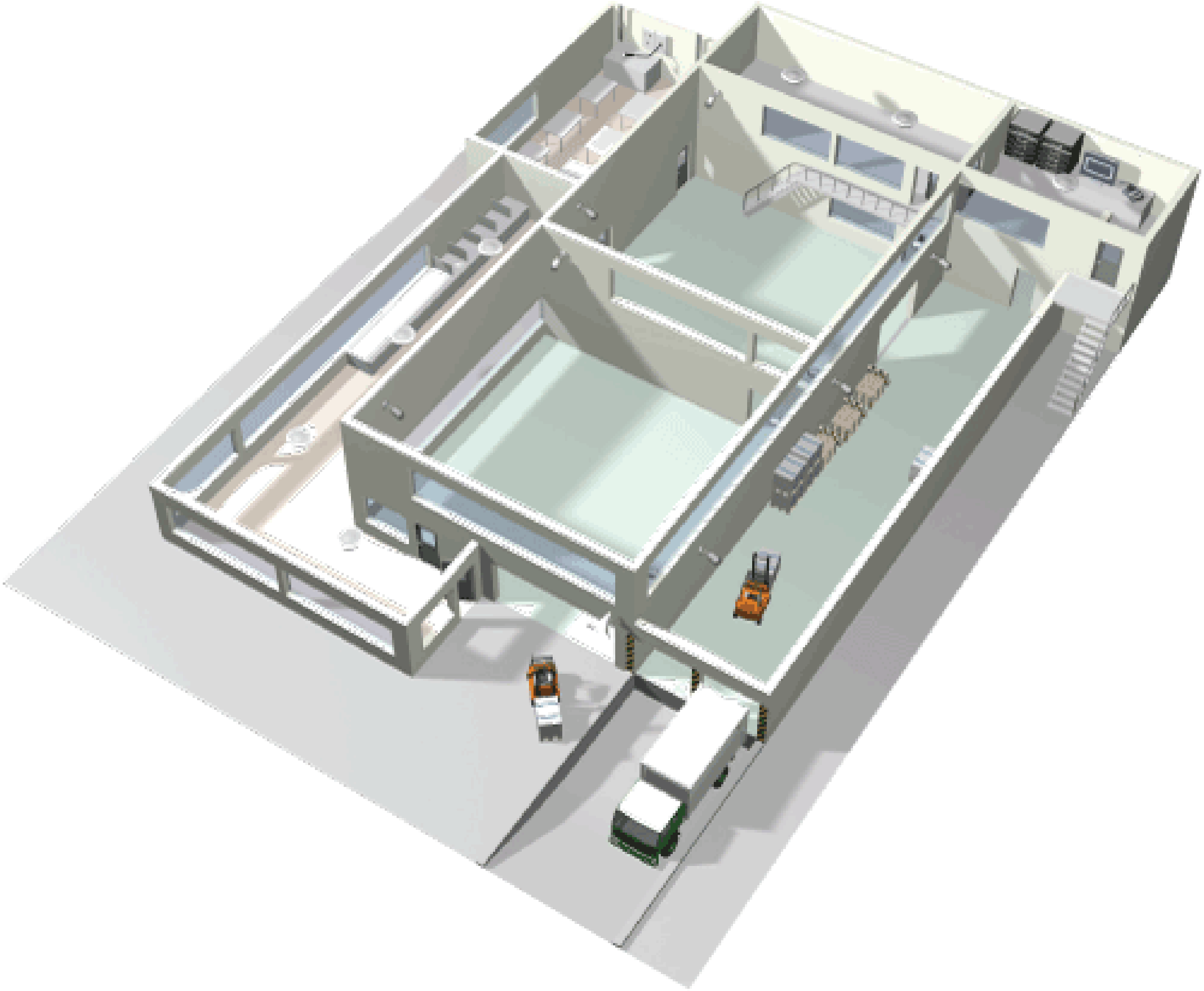
LBB 4441/00 Loudspeaker Supervision Board
Loudspeaker supervision slave PCB for mounting on a loudspeaker, operates with LBB4440/00 for monitoring the integrity of the loudspeaker.
Order number **LBB4441/00**

LBB 4443/00 End of Line (EOL) Supervision Board
Line supervision slave PCB for connecting to the end of a loudspeaker line or the end of a spur, operates with LBB4440/00 to monitor the integrity of the line.
Order number **LBB4443/00**

Praesideo - Configuration Examples

The Praesideo system can be configured to meet any set of requirements, even for complex system functions. The three examples in this section demonstrate the versatility of the system, ranging from small applications to extensive and complex installations.

Example 1 - Factory

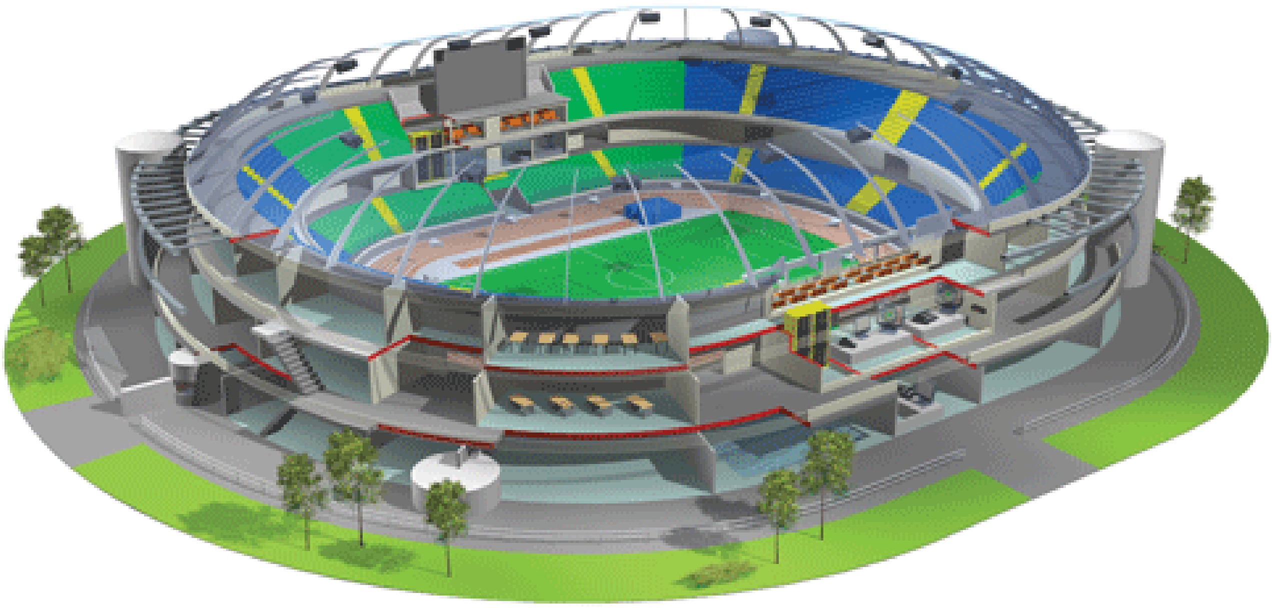


Example 1
Example 1 describes a factory (a small size system) with:

- Production hall
- Offices
- Canteen
- Workshop
- Storage
- Reception desk
- Loading bay

Each of these has been configured as a separately addressable zone. Only the reception desk has a call station with keypads for making business calls or emergency announcements to one or more of the zones. In the canteen, a handheld microphone is available for local announcements. Some of the network controller's audio inputs are used to connect a music server that acts as a multichannel background music (BGM) source with low priority. Volume setting and routing of the BGM channels to selected zones is done from a call station keypad. However, in some areas, local wall panels connected to the control inputs of the amplifiers provide volume setting and channel selection.
The network controller makes automatic, scheduled announcements to indicate breaks and shift changes. Alert and evacuation messages, prerecorded on the flash card in the network controller, are triggered from the fire detection system connected to the control inputs. Four-channel amplifiers provide power to the zones. The built-in DSP parametric equalizer in each amplifier is set up for full and balanced sound from the connected ceiling loudspeakers, sound projectors and horn loudspeaker. A spare amplifier is connected; if one of the amplifiers fails, it will kick in automatically. Line supervision sets continually monitor the loudspeaker lines, inaudibly communicating with end-of-line boards directly over the loudspeaker lines, assuring that the connections are intact. The network controller logs calls and fault events internally for either remote viewing on a PC via Ethernet, or locally on its own LCD (last 200 faults).

Example 2 - Sports Stadium

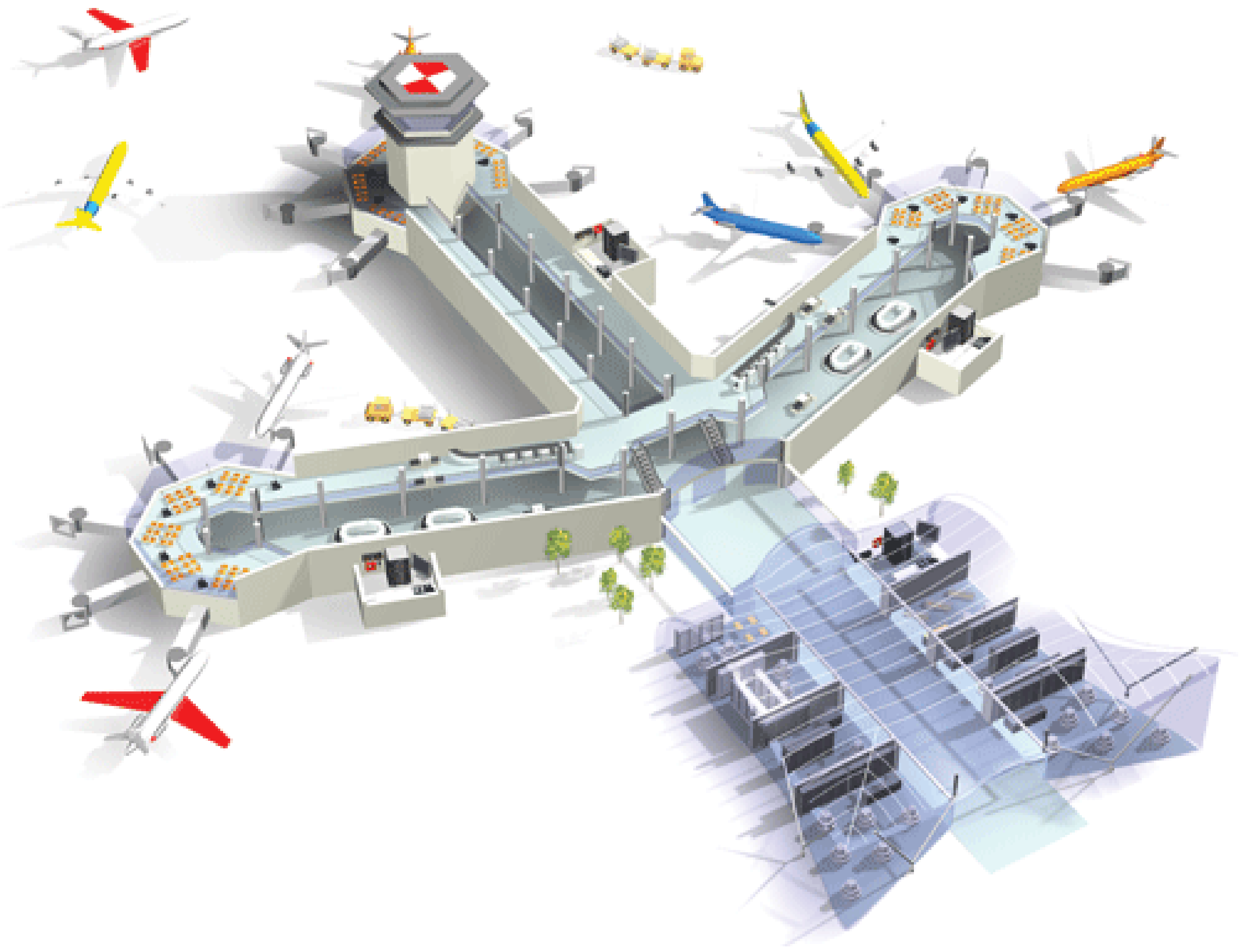


Example 2
Example 2 describes a sports stadium (a medium size system) with:

- Sports field
- Grandstand
- Offices
- Restaurants
- Food and beverage corners
- Treatment rooms
- Parking
- Technical room
- Control center
- Reception desk

All these public and non-public areas are separately addressable as zones. Power amplifiers are located on either side of the stadium, in the control room and technical room, allowing shorter cables to the loudspeakers. A redundant optical system bus loop provides a high level of system integrity and avoids disturbances from electromagnetic interference and ground loops.
The control center houses a call station with keypads for zone and function selections, and a mixing desk for commentators' microphones and music sources. For emergency purposes, the control room is equipped with a fireman's panel with synoptic zone switch layout, based on a call station kit and keypad kits. The reception desk uses a remote call station with keypads, connected via CAT-5 cable. Audio expanders provide transformer-isolated balanced outputs to television and radio recording equipment.
The smaller zones get their power from eight-channel amplifiers, with built-in automatic volume control (AVC) to adjust the sound level to the ambient noise. Ambient-sensing microphones are directly connected to the amplifiers. The high-power stadium loudspeakers are powered by a large number of high-efficiency basic amplifiers, connected to multi-channel interfaces, to provide a cost-effective solution. All system elements are monitored, from microphones and stored evacuation messages to amplifiers, loudspeaker lines and individual loudspeakers. Spare amplifiers and battery power supplies are on standby to take over automatically in case of amplifier malfunction or mains outage. Fault events are logged into a central database for viewing in the control room or remote access via Internet.

Example 3 - International Airport



Example 3
Example 3 describes an international airport (a large size system) with:

- Arrival hall
- Departure hall
- Baggage handling areas
- Terminal buildings
- Offices and conference rooms
- Lounges
- Restaurants and coffee corners
- Shopping areas

Four decentralized Praesideo systems cover this large airport, one for each terminal and one for the shopping area. Each subsystem can operate independently from the others, but they also operate as an integrated system. TCP/IP connections on the network controllers allow the flight information system to make calls in all subsystems. CobraNet interfaces create the audio interconnections between subsystems, using Ethernet. Operators can make calls to any zone in the combined network via LCD touch screen controllers. The fireman's panels in each terminal offer similar functionality for emergency calls. Praesideo's built-in supervision system monitors all system elements, including the presence of connected TCP/IP clients. A building management system links the fire detection system to Praesideo via TCP/IP.

Announcements in the arrival and departure halls have good speech intelligibility, due to the built-in audio delay and parametric equalizer sections of the power amplifiers to acoustically align the column loudspeakers and suppress hall resonances.

Praesideo's 28 available audio channels in each subsystem allows for many simultaneous gate announcements from call stations at each gate, while audio channels are still left for BGM and airport-wide live and scheduled announcements. Long return lines from looped-through call stations use fiber interfaces to convert between the normally used plastic optical fiber and low-loss glass optical fiber.

In the shopping area, each shop can select a BGM channel from a configured licensed subset of available channels, selectable via wall panel controls.

Microphones

4

Wired 214

Wireless 227

Accessories 238

LBB 9080/00 Omnidirectional Dynamic Handheld Microphone

Features

- Excellent speech reproduction
- Rugged construction
- Easy to handle
- Remote switching contact
- Close talking applications

The LBB 9080/00 handheld microphone is designed for close talking applications, and is ideal for short announcements.

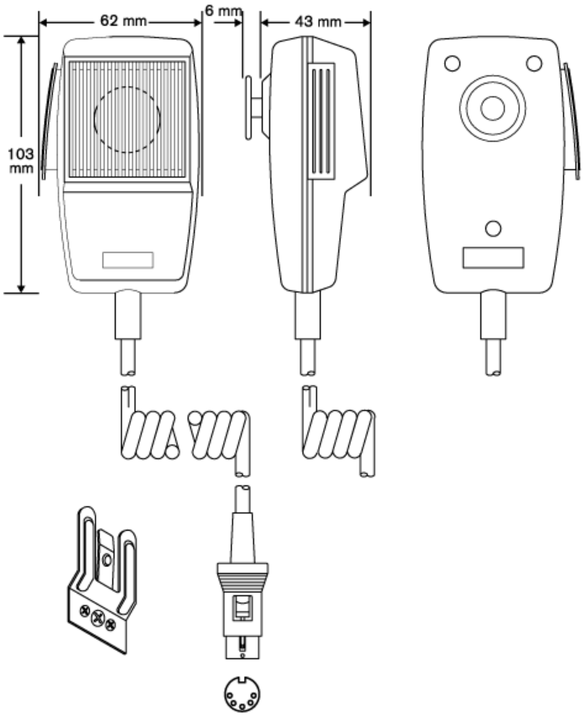
Functions

The microphone has a press to talk (PTT) switch on the side. The switch has additional contacts for remote control functions, if required.

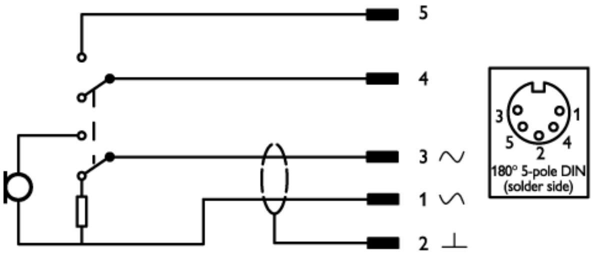
Certifications and approvals

Region	Certification
Europe	CE

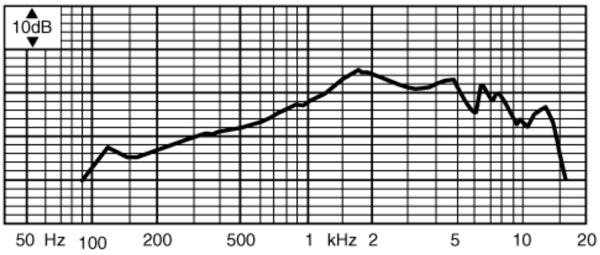
Installation/configuration notes



Dimensions in mm



Circuit diagram



Frequency response

Parts included

Quantity	Component
1	LBB 9080/00 Omnidirectional Dynamic Handheld Microphone
1	Wall-mounting bracket

Technical specifications

Electrical*

Type	Handheld
Polar pattern	Omnidirectional
Frequency range	280 Hz to 14 kHz
Sensitivity	3.1 mV/Pa ±4 dB
Rated output impedance	500 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (H x W x D)	103 x 62 x 43 mm (4.05 x 2.44 x 1.69 in)
Weight (incl. cable)	190 g (6.7 oz)
Color	Black
Switch	On/off with remote control contact
Cable type	2-core + 2-core screened (coiled)
Cable length	0.5 m (1.2 m extended)
Connector	5-pin 180° DIN (lockable)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 9080/00 Omnidirectional Dynamic Handheld Microphone
Dynamic hand-held microphone, omnidirectional, matt-black finish, close-talking applications, press- to-talk switch with remote contact, coiled cable with 5-pin 180 DIN (lockable).
Order number **LBB9080/00**

LBB 9081/00 Omnidirectional Dynamic Handheld Microphone

Features

- Excellent speech reproduction
- Rugged construction
- Easy to handle
- Remote switching contact
- Close talking applications

The LBB 9081/00 handheld microphone is designed for close talking applications, and is ideal for short announcements.

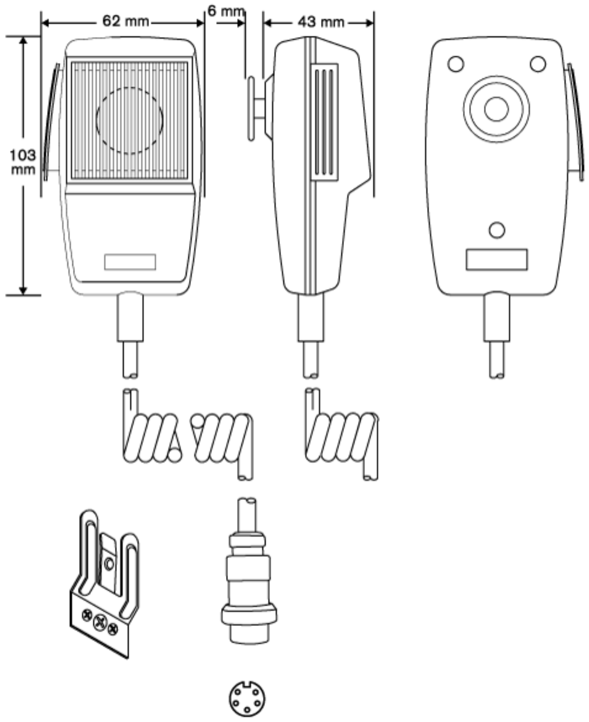
Functions

The microphone has a press to talk (PTT) switch on the side. The switch has additional contacts for remote control functions, if required. Resistors are already mounted in the switch circuit for supervision, and the microphone capsule is direct-connected, i.e. not switched.

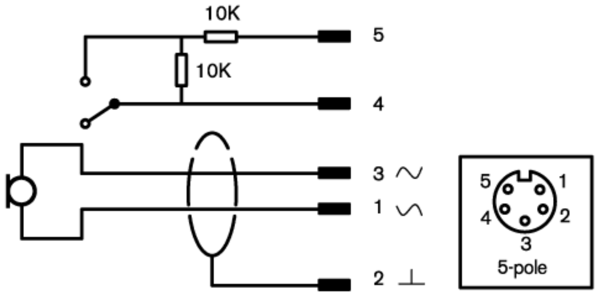
Certifications and approvals

Region	Certification	
Europe	CE	Declaration of Conformity
	CE	
	CPD	
	CPD	
Poland	CNBOP	

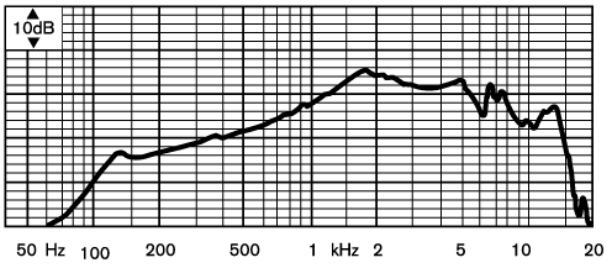
Installation/configuration notes



Dimensions in mm



Circuit diagram



Frequency response

Parts included

Quantity	Component
1	LBB 9081/00 Omnidirectional Dynamic Handheld Microphone
1	Wall-mounting bracket

Technical specifications

Electrical*

Type	Handheld
Polar pattern	Omnidirectional
Frequency response	280 Hz to 14 kHz
Sensitivity	3.1 mV/Pa ±4 dB
Rated output impedance	500 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (H x W x D)	103 x 62 x 43 mm (4.05 x 2.44 x 1.69 inch)
Weight (incl. cable)	190 g (6.7 oz)
Color	Black
Switch	On/off with remote control contact
Cable type	2-core + 2-core screened (coiled)
Cable length	0.5 m (1.2 m extended)
Connector	5-pin CB (lockable)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 9081/00 Omnidirectional Dynamic Handheld Microphone
Dynamic hand-held microphone, omnidirectional, matt-black finish, close-talking applications, press-to-talk switch with remote contact, coiled cable with 5-pin CB (lockable).
Order number **LBB9081/00**

LBB 9082/00 Unidirectional Gooseneck Microphone

Features

- Unidirectional dynamic microphone
- Flexible stem
- Excellent speech reproduction
- Rugged construction
- Built-in pop shield

The gooseneck microphone is a stylish high quality unidirectional dynamic microphone, mainly intended for public address applications.

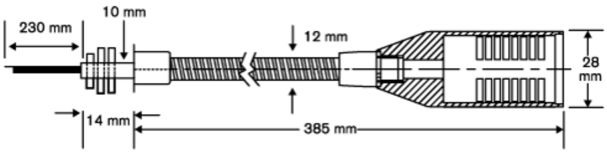
Functions

The flexible stem has an M10 screw fitting for mounting onto (fireman's) panels, lecterns or desktops.

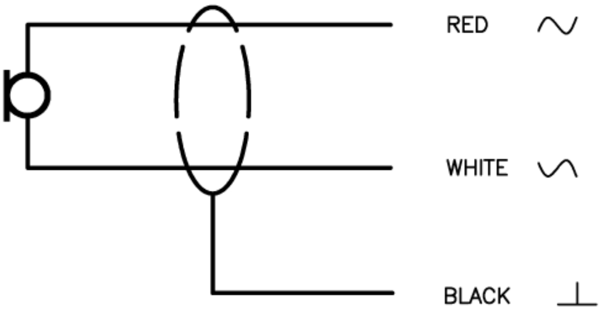
Certifications and approvals

Region	Certification
Europe	CE

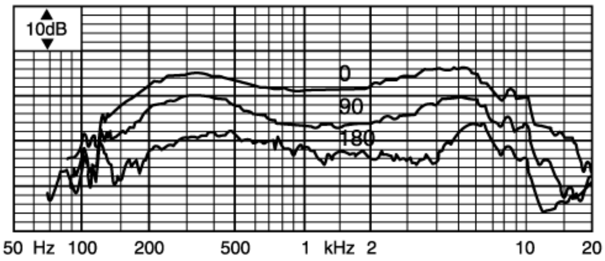
Installation/configuration notes



Dimensions in mm



Circuit diagram



Frequency response

Technical specifications

Electrical*

Type	Gooseneck
Polar pattern	Unidirectional
Frequency response	100 Hz to 15 kHz
Sensitivity	1.2 mV/Pa ±4 dB
Rated output impedance	500 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions	28 x 385 mm (1.10 x 15.16 in)
Weight	225 g (8 oz)
Color	Black
Cable type	2-core screened
Cable length	230 mm

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 9082/00 Unidirectional Gooseneck Microphone
Dynamic gooseneck microphone, unidirectional, matt-black finish, flexible stem, flange mounting, 230 mm, 2-core screened connection cable.
Order number **LBB9082/00**

LBB 9099/10 Unidirectional Handheld Microphone

Features

- Dynamic transducer
- Unidirectional handheld microphone
- High speech intelligibility
- Rugged construction
- Modern nonreflective dark gray finish

This unidirectional handheld microphone provides cost-effective, high-quality speech intelligibility and is fully compatible with other public address equipment. It is based on a dynamic transducer element in a sturdy housing with shielding against wind and wind bursts (pops). The microphone has excellent cardioid directivity, greatly reducing acoustic feedback.
The microphone is intended for public address and sound reinforcement applications such as in leisure centers, assembly halls, and shops.

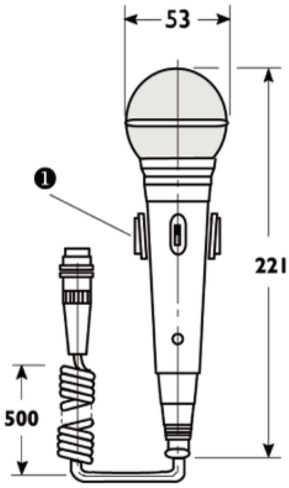
Functions

The LBB 9099/10 microphone features an on/off slide-switch with electrically isolated contacts for remote control switching, if required. This feature can switch off background music automatically, or sound announcement chimes when the microphone is activated.

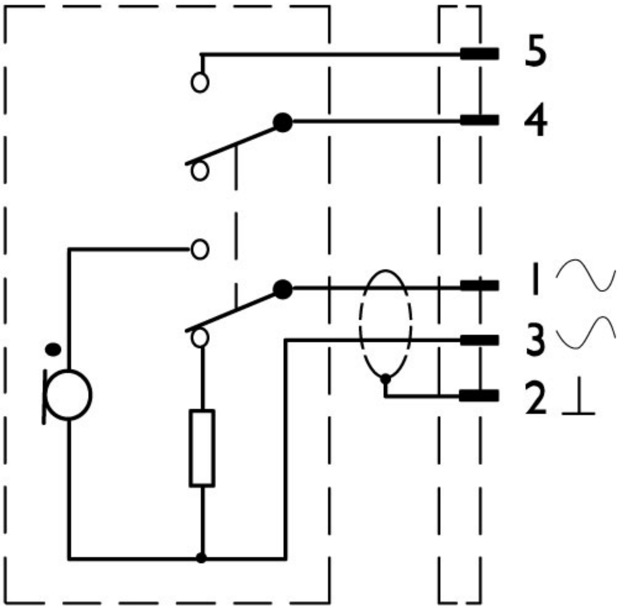
Certifications and approvals

Region	Certification
Europe	CE

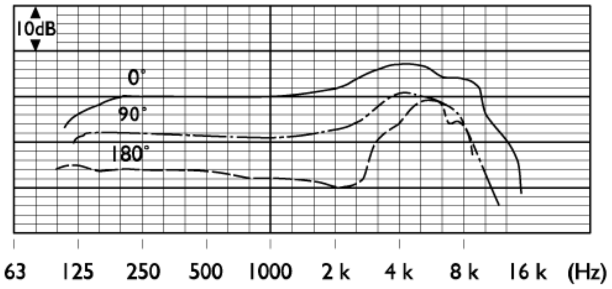
Installation/configuration notes



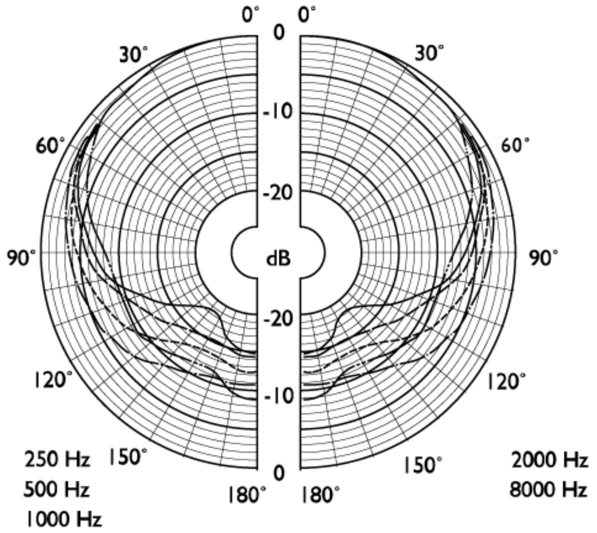
Dimensions in mm showing wall bracket (1)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Parts included

Quantity	Component
1	LBB 9099/10 Unidirectional Handheld Microphone
1	Wall-mounting bracket

Technical specifications

Electrical*

Type	Handheld
Polar pattern	Unidirectional
Frequency range	100 Hz to 13 kHz
Sensitivity	2 mV/Pa ±4 dB
Rated output impedance	600 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (L x D)	221 x 53 mm (8.7 x 2.09 in)
Weight	420 g (0.93 lb)
Color	Dark gray
Switch	On/off with remote control contact
Cable length	0.5 m (19.7 in) coiled 1.2 m (47.2 in) uncoiled
Connector	5-pin 180° DIN (lockable)

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 9099/10 Unidirectional Handheld Microphone
Dynamic hand-held microphone, unidirectional, dark gray finish, on/off switch with remote contact, coiled cable 0.5 m (1.6 ft) with lockable 5-pin DIN connector, supplied with wall bracket.
Order number **LBB9099/10**

LBC 2900/xx Unidirectional Handheld Microphones

Features

- Unidirectional dynamic microphone
- Handheld or stand-mounted use with clip (supplied)
- Rugged construction
- Modern non-reflective dark grey finish

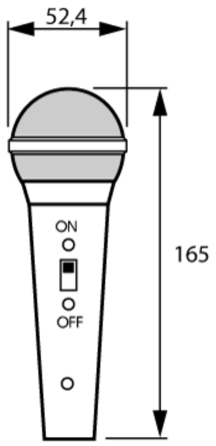
With this unidirectional microphone, Bosch provides impressive audio performance at an economical price.
The LBC 2900/xx is based on a dynamic transducer element that is designed for high speech intelligibility. Its rugged enclosure is both stylish and easy to use in a wide range of public and sound reinforcement applications.

Functions

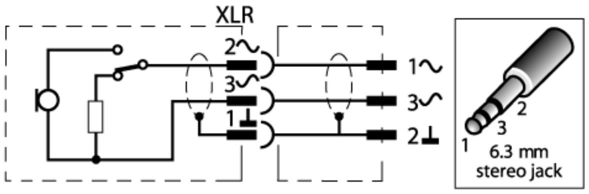
The LBC 2900/xx is a unidirectional microphone intended for either handheld or stand-mounted use. It has excellent cardioid directivity, which reduces acoustic feedback. The built-in on/off switch on the microphone body and the 3-pin lockable XLR connector at the base ensure that the microphone is easy to install and securely connected. Its modern design gives shielding against bursts (pops).

The LBC 2900/xx is ideal for use with Bosch mixing amplifiers, which are fitted with jack or XLR connectors for the input channels. Together, they provide affordable yet highly versatile public address solutions for shops, restaurants, leisure centers and other smaller applications.

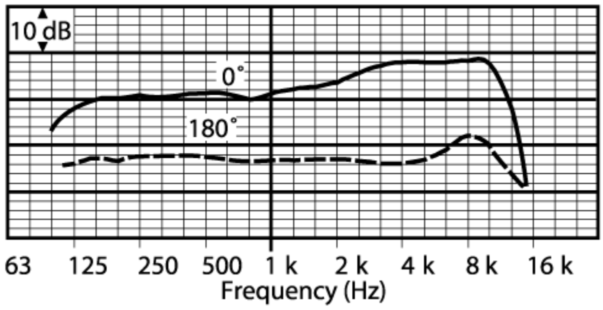
Installation/configuration notes



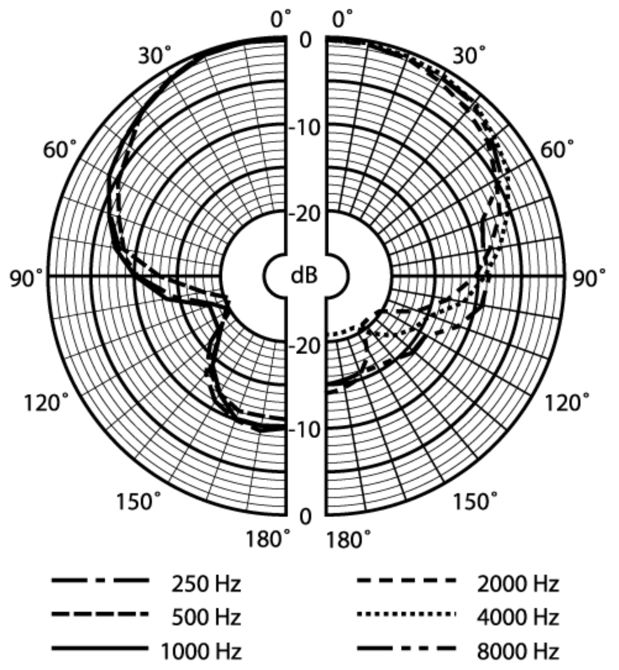
Dimensions in mm



Circuit diagram



Frequency response



Polar diagram

Parts included

Quantity	Component
1	LBC 2900/15 with 7 m (23 ft)shielded black cable terminated with a 6.3 mm (1/4”) stereo jack plug or LBC 2900/20 with a 7 m (23 ft) shielded black cable terminated with an XLR male plug
1	Stand bracket with push-on clip for use with microphone stand, and screw-thread adapter for 3/8", 1/2", or 5/8“ Whitworth-threaded stand

Technical specifications

Electrical*

Type	Handheld
Polar pattern	Unidirectional
Frequency range	80 Hz to 12 kHz
Sensitivity	1.7 mV/Pa ±3 dB
Rated output impedance	600 ohm

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (D x L)	52.4 x 165 mm (2.06 x 6.49 in)
Weight	270 g (9.5 oz)
Color	Dark gray
Switch	On/off slide
Cable length	7 m (23 ft)
Connector (/15)	6.3 mm (1/4") stereo jack
Connector (/20)	3-pin XLR

Environmental

Operating temperature	-10 °C to +55 °C (+14 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBC 2900/15 Unidirectional Handheld Microphone

Dynamic handheld microphone, unidirectional, non-reflective dark gray finish, On/off switch. Supplied with 7 m (23 ft) cable, XLR female / 6.3 mm (1/4”) stereo jack plug connection cable, quick-release microphone clamp, and storage box.
Order number **LBC2900/15**

LBC 2900/20 Unidirectional Handheld Microphone

Dynamic handheld microphone, unidirectional, non-reflective dark gray finish, On/off switch. Supplied with 7 m (23 ft) cable, XLR male/ female connection cable, quick-release microphone clamp, and storage box.
Order number **LBC2900/20**

Accessories

LBC 1215/01 Microphone Clamp

Universal spring-loaded microphone holder, friction angular adjustment, matt black, screws onto a 3/8", 1/2", or 5/8" Whitworth thread, holds microphone stem with 19 to 32 mm diameter.
Order number **LBC1215/01**

LBC 1221/01 Floor Stand

Microphone floor stand, three folding legs, matt black, adjustable length from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp, threaded connector 3/8" Whitworth.
Order number **LBC1221/01**

LBC 1227/01 Table Stand

Table microphone stand, matt black, heavy round cast-iron base, 130 mm (5.12 in) diameter with shock-absorbing rubber insert under surface, with 3/8” Whitworth stud.
Order number **LBC1227/01**

LBC 1226/01 Adjustable Boom

Microphone boom arm, matt black, maximum reach 670 mm (2.12 ft), length 840 mm (2.76 ft), fits onto 3/8' Whitworth threaded microphone stands.
Order number **LBC1226/01**

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone

Plena
BOSCH

Features

- Stylish tabletop unidirectional condenser microphone on a flexible stem
- Phantom powered by amplifier
- Momentary or toggle PTT-key for calls with priority contact
- Green LED, indicating microphone active
- Stable metal base design with fixed 2 m cable and lockable DIN connector

The Plena tabletop microphone is a stylish, high-quality tabletop unidirectional condenser microphone, mainly intended for making calls in a public address system. Its heavy metal base and rubber feet ensure stability on any flat surface. The special design also allows the unit to be neatly flush-mounted in desktops.

Functions

The PTT-key (press-to-talk), not only switches on the microphone, but also provides priority contacts, that are compatible with the Plena range of amplifiers. The switching characteristic of the PTT-key can be configured internally for PTT-mode (on as long as pressed) or toggle-mode (press to switch on, press again to switch off).

It is equipped with a fixed, flexible 2 m cable and a 5-pin DIN connector for the balanced signal and the priority contacts. If the priority contacts are not required, the microphone can be connected to amplifiers with 3-pin XLR-inputs, using the DIN to XLR adapter.

A green LED indicates when the microphone is active.

Controls and indicators

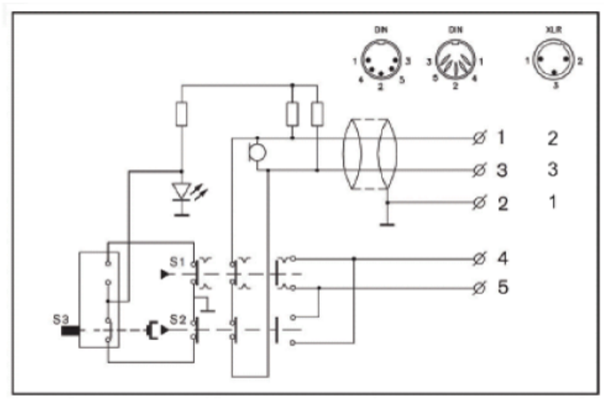
- PTT-key
- PTT status LED

Certifications and approvals

Safety	acc. to EN 60065
Immunity	acc. to EN 55103-2
Emission	acc. to EN 55103-1

Region	Certification
Europe	CE

Installation/configuration notes



Circuit diagram

Parts included

Quantity	Component
1	LBB 1950/10 PLENA Tabletop Unidirectional Condenser Microphone
1	DIN to XLR adapter

Technical specifications

Electrical

Phantom power supply	
Voltage range	12 to 48 V
Current consumption	<8 mA
Performance	
Sensitivity	0.7 mV @ 85 dB SPL (2 mV/Pa)
Maximum input sound level	110 dB SPL
Distortion	<0.6% (maximum input)
Input noise level (equiv.)	28 dB SPLA (S/N 66 dBA ref. 1 Pa)
Frequency response	100 Hz to 16 kHz
Output impedance	200 ohm

Mechanical

Base dimensions (H x W x D)	40 x 100 x 235 mm (1.57 x 3.97 x 9.25 in)
Weight	Approx. 1 kg (2.2 lb)
Color	Charcoal with silver
Stem length with mic	390 mm (15.35 in)
Cable length	2 m (6.56 ft)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBB 1950/10 Plena Tabletop Unidirectional Condenser Microphone
Tabletop unidirectional condenser microphone on a flexible stem.
Order number **LBB1950/10**

LBB 9600/20 Condenser Handheld Microphone

Features

- Condenser transducer
- Unidirectional
- High speech intelligibility
- Low sensitivity to case noise and vibrations
- Phantom powered

This condenser microphone is based on an electric transducer element in a sturdy housing with shielding against wind and wind bursts (pops). It is intended for public address and sound reinforcement applications, such as in churches, theaters, and conference centers.

Functions

The handheld LBB 9600/20 is an excellent microphone with almost frequency independent, unidirectional directivity. Its low equivalent input noise level and insensitivity to stray electrostatic and electromagnetic fields keep the audio signal free from spurious noise.

The microphone has an on/off slide-switch and a 3-pin, lockable XLR plug. It uses a phantom power supply, which is available on all microphone inputs on Bosch public address amplifiers.

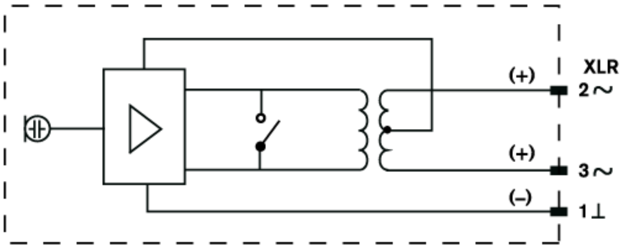
It comes with a push-on clip with a Whitworth-threaded screw fitting, and a multi-thread adaptor (3/8", ½", and 5/8") for mounting. The supplied 7 m (23 ft) connection cable has 3-pin, lockable male and female XLR connectors.

Accessories
A number of accessories, such as extension cables, table stands and floor stands are also available. See the separate microphone accessories data sheet.

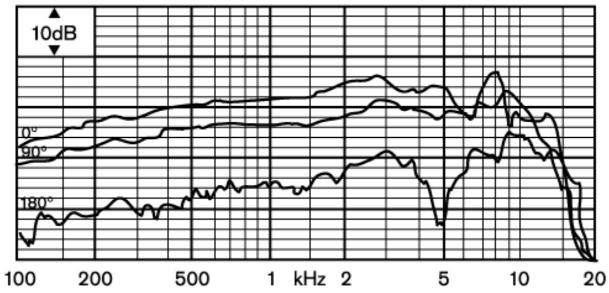
Certifications and approvals

Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes



Circuit diagram



Frequency response

Technical specifications

Electrical*

Phantom power supply	
Voltage range	11 V to 52 V (acc. to DIN 45596 and IEC 268-15A)
Current consumption	<1.5 mA
Performance	
Polar pattern	Unidirectional
Frequency range	100 Hz to 16 kHz
Sensitivity	2 mV/Pa +/--3 dB (-54 dB rel. to 1 V/Pa)
Rated output impedance	200 ohm
Equivalent input noise level	26 dB (A)

* Technical performance data acc. to IEC 60268-4

Mechanical

Dimensions (D x L)	54 x 170 mm (2.13 x 6.69 in)
Weight	245 g (8.64 oz)
Color	Black
Switch	On/off slide
Cable type	
Cable length	7 m (23 ft)
Connector	3-pin XLR (male)

Environmental

Operating temperature	-20 °C to +55 °C (-4 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LBB 9600/20 Condenser Handheld Microphone
Condenser hand-held microphone, unidirectional, matt-black finish, on/off switch, supplied with 7 m (23 ft) cable, 3-pin lockable male and female XLR connectors.
Order number **LBB9600/20**

Accessories

LBC 1221/01 Floor Stand
Microphone floor stand, three folding legs, matt black, adjustable length from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp, threaded connector 3/8" Whitworth.
Order number **LBC1221/01**

LBC 1226/01 Adjustable Boom
Microphone boom arm, matt black, maximum reach 670 mm (2.12 ft), length 840 mm (2.76 ft), fits onto 3/8' Whitworth threaded microphone stands.
Order number **LBC1226/01**

LBC 1227/01 Table Stand
Table microphone stand, matt black, heavy round cast-iron base, 130 mm (5.12 in) diameter with shock-absorbing rubber insert under surface, with 3/8” Whitworth stud.
Order number **LBC1227/01**

MW1-RX-Fx Wireless Microphone Receivers

Features

- 193 automatically selectable UHF channels
- PLL synthesized technology
- Pilot tone & noise squelch
- True diversity for stable reception
- Table top and 19” rack mountable

The MW1-RX-F1 and MW1-RX-F2 wireless microphone receiver is part of the Bosch wireless microphone system. The complete system consists of a microphone receiver, a wireless belt-pack transmitter with clip-on lavalier microphone (MW1-LTX-F1 or MW1-LTX-F2) or a wireless handheld transmitter (MW1-HTX-F1 or MW1-HTX-F2). The products are sold separately to offer optimal flexibility in the composition of a system.

The wireless microphone system is designed for public address in churches, restaurants, conference centers, hotels, shops and many other applications.

A dual rack mount kit (MW1-RMB) including, a front panel, and an antenna adapter kit for mounting up to two receivers in a 19” rack are also available.

Functions

Frequencies

The receivers operate in the UHF band, providing interference reduction, while 193 available frequencies ensure stable reception. The MW1-RX-F1 operates in the 790 to 814 MHz frequency band, and the MW1-RX-F2 operates in the 852 to 876 MHz band. The country overview lists the recommended type number for each country.

Operation

If the microphone is already set to a frequency, the receiver can scan the frequency band and automatically connect to the microphone. A lock function protects the receiver settings, making accidental changes impossible. This feature is also available on the Bosch hand-held microphone and the belt-pack transmitter. The LCD on the receiver shows the selected frequency, the RF and AF signal level, antenna indication and the battery status of the microphone which is used.

The microphone receiver has balanced XLR and unbalanced output for more convenience.

Controls and indicators

- Frequency up/down buttons
- Menu selection button
- Audio level knob
- LCD with backlight displaying: frequency, antenna A/B, mute status (squelch), RF/AF level, battery level

Interconnections

- 3-pin XLR male, balanced
- 6.3 mm jack, unbalanced

Certifications and approvals

CE Marking	acc. to R & TTE directive 1999/5/EC
EMC	acc. to ETSI EN 301489-1 acc. to ETSI EN 301489-9 acc. to ETSI EN 300422-2

Region	Certification
Europe	CE

Installation/configuration notes

Country Overview

Austria	MW1-RX-F1 / MW1-RX-F2
Belgium	MW1-RX-F1 / MW1-RX-F2
Czech republic	MW1-RX-F1
Denmark	MW1-RX-F1
Estonia	MW1-RX-F1 / MW1-RX-F2
Finland	MW1-RX-F2
France	MW1-RX-F1
Germany	MW1-RX-F1 / MW1-RX-F2
Hungary	MW1-RX-F1 / MW1-RX-F2
Ireland	MW1-RX-F2
Italy	MW1-RX-F1 / MW1-RX-F2
Liechtenstein	MW1-RX-F1 / MW1-RX-F2
Lithuania	MW1-RX-F1
Luxembourg	MW1-RX-F1 / MW1-RX-F2
Netherlands	MW1-RX-F2
Norway	MW1-RX-F1 / MW1-RX-F2
Poland	MW1-RX-F1 / MW1-RX-F2
Portugal	MW1-RX-F1
Slovakia	MW1-RX-F2
Switzerland	MW1-RX-F1
Spain	MW1-RX-F2
Sweden	MW1-RX-F2
United Kingdom	MW1-RX-F2

Australia	MW1-RX-F1
China	MW1-RX-F1
Indonesia	MW1-RX-F1 / MW1-RX-F2
Japan	MW1-RX-F1
Korea	MW1-RX-F1
Philippines	MW1-RX-F1 / MW1-RX-F2
Taiwan	MW1-RX-F1
Thailand	MW1-RX-F1 / MW1-RX-F2
Vietnam	MW1-RX-F1 / MW1-RX-F2
MW1-RX-F1	790 to 814 MHz
MW1-RX-F2	852 to 876 MHz

Parts included

Quantity	Components
1	MW1-RX-F1 Wireless Microphone Receiver or MW1-RX-F2 Wireless Microphone Receiver
1	User manual
1	1.5 m 3-pin XLR male/female cable
1	AC/DC adapter with power cord

Technical specifications

Electrical

Power source	12 V to 18 V, 500 mA
Performance	
Modulation	FM
Frequency selection	PLL synthesized control
Frequency range	MW1-RX-F1: 790 to 814 MHz MW1-RX-F2: 852 to 876 MHz
Channels	193 channels in steps of 125 kHz
Frequency stability	±0.005%
Technology	True diversity system
S/N ratio	>100 dB
Antenna	2 x
Connector	BNC
HF impedance	50 ohm
Output	2 x
Connector	XLR-3 male, balanced
Output level	-12 dBV (max)
Output impedance	600 ohm
Connector	6.3 mm jack, unbalanced
Output level	0 dBV (max)
Output impedance	2.2 kohm
Squelch	Pilot tone and noise mute

Mechanical

Dimensions (H x W x D)	40 x 211 x 152 mm
Color	Charcoal
Weight	Approx. 1 kg
Antenna length	50 mm (½ λ)

Environmental

Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

Ordering information

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

Accessories

MW1-RMB Dual Rack-mounting Kit
Dual-rack mounting kit for mounting two receivers side-by-side in a one-unit high rack space. Supplied with two BNC/BNC cables (600 mm) and a front panel with mounting holes for 2 BNC connectors for mounting two antennas.
Order number **MW1-RMB**

MW1-HTX-Fx Wireless Handheld Microphones

Features

- 193 selectable UHF channels
- PLL synthesized technology
- LCD with battery status and frequency indication
- Lock function
- Approximately 15 hours operation on alkaline batteries

The MW1-HTX-F1 and MW1-HTX-F2 wireless handheld microphones are part of the Bosch wireless microphone system. The complete system consists of a microphone receiver (MW1-RX-F1 or MW1-RX-F2), a wireless handheld microphone (MW1-HTX-F1 or MW1-HTX-F2) or a wireless belt-pack transmitter with clip-on lavalier microphone (MW1-LTX-F1 and MW1-LTX-F2). The products are sold separately to offer optimal flexibility in the composition of a system.

The wireless microphone system is designed for public address in houses of worship, restaurants, conference centers, hotels, shops and many other applications.

Functions

Frequencies

The microphones operate in the UHF band providing interference reduction, while the true diversity ensures stable reception. The MW1-HTX-F1 operates in the 790 to 814 MHz frequency band, and the MW1-RX-F2 operates in the 852 to 876 MHz band, each providing 193 selectable frequencies. The country overview lists the recommended type number for each country.

Operation

The handheld microphones can operate approximately 15 hours on alkaline batteries. A lock function protects the microphone settings, making accidental changes impossible. This feature is also available on the Bosch microphone receiver and the belt-pack transmitter. An LCD on the handheld microphones shows the selected frequency and the battery status.

Accessories

The microphones come with a case to protect them from damage. Different color microphone caps are provided for applications, where multiple microphone systems are used simultaneously. The microphones also come with an adapter for microphone stands.

Controls and indicators

- Frequency up/down buttons
- LCD displaying frequency and battery level

Certifications and approvals

CE Marking	acc. to R & TTE directive 1999/5/EC
EMC	acc. to ETSI EN 301489-1 acc. to ETSI EN 301489-9 acc. to ETSI EN 300422-2

Region	Certification
Europe	CE

Installation/configuration notes

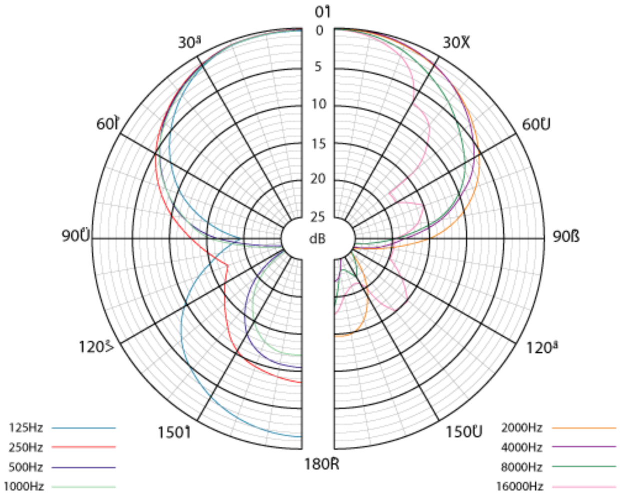
Country Overview

Austria	MW1-RX-F1 / MW1-RX-F2
Belgium	MW1-RX-F1 / MW1-RX-F2
Czech republic	MW1-RX-F1
Denmark	MW1-RX-F1
Estonia	MW1-RX-F1 / MW1-RX-F2
Finland	MW1-RX-F2
France	MW1-RX-F1
Germany	MW1-RX-F1 / MW1-RX-F2
Hungary	MW1-RX-F1 / MW1-RX-F2
Ireland	MW1-RX-F2
Italy	MW1-RX-F1 / MW1-RX-F2
Liechtenstein	MW1-RX-F1 / MW1-RX-F2
Lithuania	MW1-RX-F1
Luxembourg	MW1-RX-F1 / MW1-RX-F2
Netherlands	MW1-RX-F2
Norway	MW1-RX-F1 / MW1-RX-F2
Poland	MW1-RX-F1 / MW1-RX-F2
Portugal	MW1-RX-F1
Slovakia	MW1-RX-F2
Spain	MW1-RX-F2
Switzerland	MW1-RX-F1
Sweden	MW1-RX-F2
United Kingdom	MW1-RX-F2
Australia	MW1-RX-F1
China	MW1-RX-F1
Indonesia	MW1-RX-F1 / MW1-RX-F2

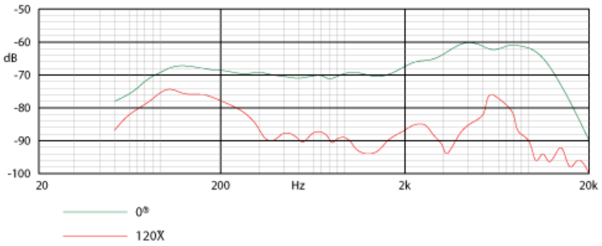
Japan	MW1-RX-F1
Korea	MW1-RX-F1
Philippines	MW1-RX-F1 / MW1-RX-F2
Taiwan	MW1-RX-F1
Thailand	MW1-RX-F1 / MW1-RX-F2
Vietnam	MW1-RX-F1 / MW1-RX-F2
MW1-RX-F1	790 to 814 MHz
MW1-RX-F2	852 to 876 MHz

Detail of microphone holder

Protective case with wireless, handheld microphone and accessories



Polar diagram



Frequency response

Parts included

Quantity	Components
1	MW1-HTX-F1 Wireless Handheld Microphone or MW1-HTX-F2 Wireless Handheld Microphone
1	Microphone holder
1	Protective case
2	LR5/AA batteries
6	Color caps

Technical specifications

Electrical

Batteries	2 x LR6/AA/UM3 1.5 V
Battery life time	Approx. 15 hrs

Modulation	FM frequency modulation
Frequency selection	PLL synthesized control
Frequency range	MW1-HTX-F1: 790 to 814 MHz MW1-HTX-F2: 852 to 876 MHz
Channels	193 channels in steps of 125 kHz
Frequency stability	±0.005%
Frequency deviation	± 48 kHz
S/N ratio	>102 dB

RF output	10 mW
Spurious rejection	>60 dBc
Dynamic range	>110 dB
Response	50 Hz ~ 15 kHz

Mechanical

Dimensions (H x W)	260 x 50 mm
Color	Charcoal
Weight	350 g
Antenna	Integrated

Environmental

Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

MW1-LTX-Fx Wireless Belt-pack Transmitters

Features

- 193 selectable UHF channels
- PLL synthesized technology
- LCD with battery status and frequency indication
- Lock function
- Approximately 15 hours operation on alkaline batteries

The MW1-LTX-F1 and MW1-LTX-F2 wireless belt-pack transmitters are part of the Bosch wireless microphone system. The complete system consists of a microphone receiver (MW1-RX-F1 or MW1-RX-F2), a wireless belt-pack transmitter with clip-on lavalier microphone (MW1-LTX-F1 or MW1-LTX-F2), a wireless handheld microphone (MW1-HTX-F1 or MW1-HTX-F2). The products are sold separately to offer optimal flexibility in the composition of the system.

The wireless microphone system is designed for public address in houses of worship, restaurants, conference centers, hotels, shops and many other applications.

The lavalier microphone (MW1-LMC) can be ordered separately without the belt-pack transmitter. An optional head-worn microphone (MW1-HMC) can also be ordered separately.

Functions

Frequencies

This microphone system operates in the UHF band providing interference reduction, while 193 available frequencies ensure stable reception. The MW1-LTX-F1 operates in the 790 to 814 MHz frequency band, and the MW1-LTX-F2 operates in the 852 to 876 MHz band. The country overview lists the recommended type number for each country.

Operation

The belt-pack transmitter can operate approximately 15 hours on alkaline batteries. A lock function protects the transmitter settings, making accidental changes impossible. This feature is also available on the Bosch microphone receiver and the belt-pack transmitter. An LCD on the transmitter shows the selected frequency and the battery status.

The belt-pack transmitter comes with a case to protect it from damage, and a lavalier clip-on microphone (MW1-LMC).

Controls and indicators

- Frequency up/down buttons
- LCD displaying frequency and battery level

Certifications and approvals

CE Marking	acc. to R & TTE directive 1999/5/EC
EMC	acc. to ETSI EN 301489-1 acc. to ETSI EN 301489-9 acc. to ETSI EN 300422-2

Region	Certification
Europe	CE

Installation/configuration notes

Country Overview

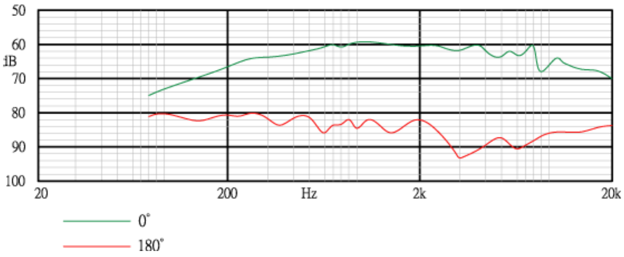
Austria	MW1-RX-F1/MW1-RX-F2
Belgium	MW1-RX-F1/MW1-RX-F2
Czech republic	MW1-RX-F1
Denmark	MW1-RX-F1
Estonia	MW1-RX-F1/MW1-RX-F2
Finland	MW1-RX-F2
France	MW1-RX-F1
Germany	MW1-RX-F1/MW1-RX-F2
Hungary	MW1-RX-F1/MW1-RX-F2
Ireland	MW1-RX-F2
Italy	MW1-RX-F1/MW1-RX-F2
Liechtenstein	MW1-RX-F1/MW1-RX-F2
Lithuania	MW1-RX-F1
Luxembourg	MW1-RX-F1/MW1-RX-F2
Netherlands	MW1-RX-F2
Norway	MW1-RX-F1/MW1-RX-F2
Poland	MW1-RX-F1/MW1-RX-F2
Portugal	MW1-RX-F1
Slovakia	MW1-RX-F2
Spain	MW1-RX-F2
Switzerland	MW1-RX-F1
Sweden	MW1-RX-F2

United Kingdom	MW1-RX-F2
Australia	MW1-RX-F1
China	MW1-RX-F1
Indonesia	MW1-RX-F1/MW1-RX-F2
Japan	MW1-RX-F1
Korea	MW1-RX-F1
Philippines	MW1-RX-F1/MW1-RX-F2
Taiwan	MW1-RX-F1
Thailand	MW1-RX-F1/MW1-RX-F2
Vietnam	MW1-RX-F1/MW1-RX-F2
MW1-RX-F1	790 to 814 MHz
MW1-RX-F2	852 to 876 MHz

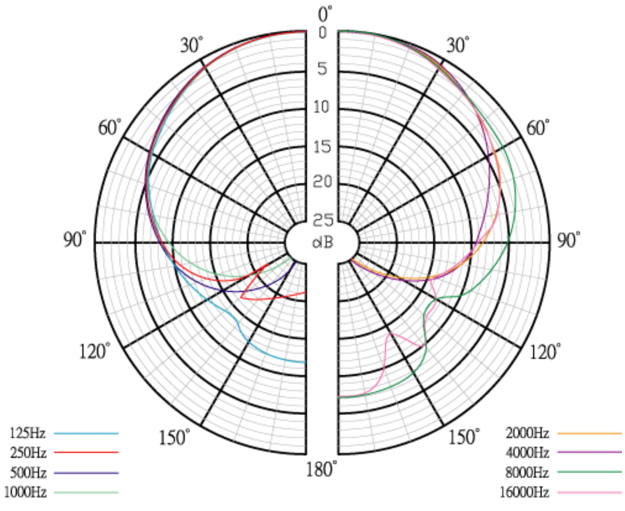
Protective case with wireless, belt-pack and accessories

Belt-pack rear view

Lavalier microphone with clip



Frequency response



Polar diagram

Parts included

Quantity	Components
1	MW1-LTX-F1 Wireless Belt-pack Transmitter or MW1-LTX-F2 Wireless Belt-pack Transmitter
1	Protective case
2	LR5/AA batteries
1	MW1-LMC Lavalier Microphone
1	Windscreen
1	Clip

Technical specifications

Electrical

Belt-pack	
Batteries	2 x LR6/AA/UM3 1.5 V
Battery life time	Approx. 15 hr
Modulation	FM frequency modulation
Frequency selection	PLL synthesized control
Frequency range	MW1-LTX-F1: 790 to 814 MHz MW1-LTX-F2: 852 to 876 MHz
Channels	193 channels in steps of 125 kHz
Frequency stability	±0.005%
Frequency deviation	±48 kHz
S/N ratio	>102 dB
RF output	10 mW
Spurious rejection	>60 dBc
Dynamic range	>110 dB
Response	50 Hz to 15 kHz
Squelch	Pilot tone & noise mute

Lavalier microphone	
Connector	Mini XLR (tiny QG)
Frequency range	100 Hz to 12 kHz
Polar pattern	Cardioid
Sensitivity (at 1 kHz)	-70 dB ± 3 dB
Impedance	2.2 kohm ±30%
Max SPL for 1% THD	130 dB(SPL)

Mechanical

Belt-pack	
Dimensions (H x W x D)	105 x 78 x 34 mm without antenna
Color	Charcoal
Weight	176 g
Antenna	Flexible

Lavalier microphone	
Dimensions (L x D)	30 x 16 mm
Color	Charcoal
Weight	20 g
Cable length	1 m

Environmental

Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +70 °C
Relative humidity	<95%

Ordering information

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

Accessories

MW1-HMC Head-worn Microphone
Head-worn microphone with miniature condenser microphone with omni-directional pick-up pattern, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-HMC**

MW1-LMC Lavelier Microphone
Lavalier clip-on microphone with windscreen, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-LMC**

MW1-HMC Head-worn Microphone

Features

- Optional use with belt-pack transmitters MW1-LTX-Fx
- Comfortable and lightweight
- Miniature condenser microphone with omni-directional pick-up pattern
- No proximity effect

This head-worn microphone can be optionally used and connected to the Belt-pack transmitter MW1-LTX-Fx.
The sturdy, yet lightweight neck-strip combines secure fitting with comfortable wearing. The integrated drip ring protects the microphone capsule against humidity (sweat), guaranteeing longer operating life.
A storage bag and two windscreens are supplied as standard accessories.

Functions

Operation
Thanks to the omni-directional pick-up pattern, this microphone can be used unobtrusively, positioned next to the speaker’s mouth.

Interconnections
- Mini XLR (tiny QG)

Parts included

Quantity	Components
1	MW1-HMC Head-worn Microphone
1	Storage bag
2	Windscreens

Technical specifications

Electrical

Power source	from Belt-pack transmitter MW1-LTX-Fx
Transducer	Condenser
Polar pattern	Omni-directional
Frequency range	60 to 15000 Hz
Sensitivity	10 mV/Pa
Max. SPL for 1% THD	130 dB (SPL)
Impedance	2200 ohm ± 30%

Mechanical

Dimensions (H x W)	160 x 140 mm (6.30 x 5.514 in)
Color	Charcoal with white
Weight	32 g (0.07 lb)
Cable length	1.45 m (4.76 ft)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

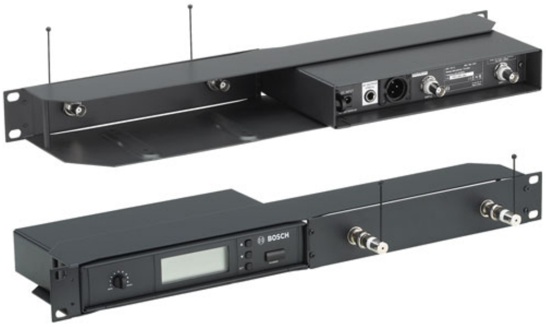
MW1-HMC Head-worn Microphone
Head-worn microphone with miniature condenser microphone with omni-directional pick-up pattern, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-HMC**

Accessories

MW1-LTX-F1 UHF Wireless Belt-pack Transmitter
frequency range 790 to 814 MHz
Order number **MW1-LTX-F1**

MW1-LTX-F2 UHF Wireless Belt-pack Transmitter
frequency range 852 to 876 MHz
Order number **MW1-LTX-F2**

MW1-RMB Dual Rack-mounting Kit



The kit is for mounting MW1-RX-Fx Wireless Microphone Receivers in 19” racks. It can mount two units, side by side in a one-unit high rack space. When only one unit is used, the other half of the frame can be fitted with the supplied panel, which can mount the two antennas. These are connected to the receiver via the two supplied BNC cables.

Notice
The product photos include the MW1-RX-Fx Wireless Microphone Receiver

Parts included

Quantity	Component
1	MW1-RMB Dual Rack-mounting Kit
4	Mounting screws for frame
1	Front panel with mounting holes for 2 BNC connectors
4	Mounting screws for panel
2	Double sided BNC connectors (for panel)
2	BNC/BNC cables (600 mm)

Ordering information

MW1-RMB Dual Rack-mounting Kit
Dual-rack mounting kit for mounting two receivers side-by-side in a one-unit high rack space. Supplied with two BNC/BNC cables (600 mm) and a front panel with mounting holes for 2 BNC connectors for mounting two antennas.
Order number **MW1-RMB**

MW1-LMC Lavelier Microphone

Ordering information

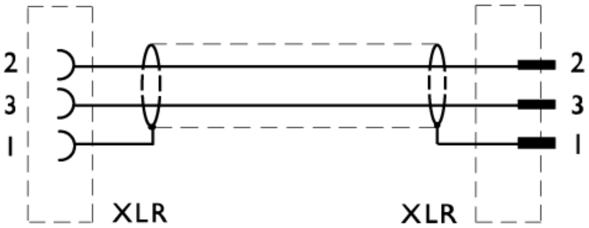
MW1-LMC Lavelier Microphone
Lavalier clip-on microphone with windscreen, for use with the Belt-pack transmitter MW1-LTX-Fx.
Order number **MW1-LMC**

LBC 1208/40 Microphone Cable

Features

- 10 m (32.8 ft) extension cable
- Twin-core screened cable
- Three-pole lockable male and female XLR connectors (metal)

System overview



LBC 1208/40 (10 m)

Certifications and approvals

Region	Certification
Europe	CE

Technical specifications

Mechanical

Length	10 m (32.8 ft)
Weight	420 g (1.13 lb)
Color	black

Ordering information

LBC 1208/40 Microphone Cable
Microphone connection/extension cable, 3-pin XLR, 10 m (32.8 ft).
Order number **LBC1208/40**

LBC 1215/01 Microphone Clamp

Features

- Quick-release universal microphone clamp
- Spring-loaded microphone holder
- Friction angular adjustment
- Screws onto a 3/8", 1/2" or 5/8" Whitworth thread
- Holds microphone stem with 19 to 32 mm diameter

The 1215/01 Microphone Clamp is available for all Bosch hand-held microphones.

Certifications and approvals

Region	Certification
Europe	CE

Technical specifications

Mechanical

Weight	60 g (0.13 lb)
Color	Matt black

Ordering information

LBC 1215/01 Microphone Clamp
Universal spring-loaded microphone holder, friction angular adjustment, matt black, screws onto a 3/8", 1/2", or 5/8" Whitworth thread, holds microphone stem with 19 to 32 mm diameter.
Order number **LBC1215/01**

LBC 1221/01 Floor Stand

Features

- Adjustable from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp
- Three folding legs (360 mm; 1.18 ft) for stability
- Column terminates in male 3/8" Whitworth thread

Technical specifications

Mechanical

Dimensions (folded)	850 x 110 mm (33.46 x 5.25 in)
Weight	2.4 kg (6.43 lb)
Color	matt black

Ordering information

LBC 1221/01 Floor Stand
Microphone floor stand, three folding legs, matt black, adjustable length from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp, threaded connector 3/8" Whitworth.
Order number **LBC1221/01**

Accessories

LBC 1226/01 Adjustable Boom
Microphone boom arm, matt black, maximum reach 670 mm (2.12 ft), length 840 mm (2.76 ft), fits onto 3/8' Whitworth threaded microphone stands.
Order number **LBC1226/01**

LBC 1226/01 Adjustable Boom

Features

- Adjustable in reach and angle (quick-release screw clamp)
- Maximum reach of 670 mm (2.12 ft)
- Fits onto 3/8" Whitworth thread

Technical specifications

Mechanical

Length	840 mm (2.76 ft)
Weight	700 g (1.88 lb)
Color	matt black

Ordering information

LBC 1226/01 Adjustable Boom
Microphone boom arm, matt black, maximum reach 670 mm (2.12 ft), length 840 mm (2.76 ft), fits onto 3/8' Whitworth threaded microphone stands.
Order number **LBC1226/01**

Accessories

LBC 1221/01 Floor Stand
Microphone floor stand, three folding legs, matt black, adjustable length from 850 to 1600 mm (2.79 to 5.25 ft) with twist clamp, threaded connector 3/8" Whitworth.
Order number **LBC1221/01**

LBC 1227/01 Table Stand

Features

- Heavy-duty table stand
- 3/8" Whitworth stud
- Shock-absorbing under surface

Technical specifications

Mechanical

Diameter	130 mm (5.12 in)
Weight	995 g (2.66 lb)
Color	matt black

Ordering information

LBC 1227/01 Table Stand
Table microphone stand, matt black, heavy round cast-iron base, 130 mm (5.12 in) diameter with shock-absorbing rubber insert under surface, with 3/8” Whitworth stud.
Order number **LBC1227/01**

Loudspeakers

5

Cabinet 244

Column 283

XLA 3200 Line Array 301

Vari-directional Array 321

Ceiling 329

Sound Projectors 384

Horn 412

Accessories 445

Ingress Protection Definition 464

LB1-UM06E-1 Metal Cabinet Loudspeaker

Features

- Suitable for speech and music reproduction
- Robust metal enclosure
- Surface and/or recessed mounting
- Provision for internal mounting of the optional line/loudspeaker supervision boards
- Recommended for voice evacuation systems

The LB1-UM06E-1 circular metal cabinet emergency loudspeaker delivers professional performance from a robust, yet aesthetically designed metal enclosure. It is an ideal loudspeaker for indoor use in offices, schools, car parks, shopping centers, and in areas where vandalism is a potential hazard.

Functions

Voice alarm
Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of PA systems is subject to official regulations. The LB1-UM06E-1 is designed for voice alarm systems, and is compliant with British Standard BS 5839-8 and EN 60849.

Protection
The loudspeaker has built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety
The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The cabinet has a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

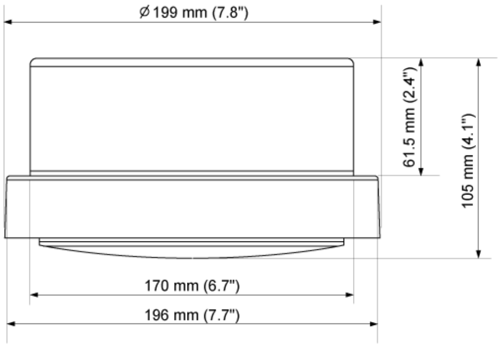
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8
	according to EN 60849
	according to EN 54-24
Water and dust protection	according to EN60529 IP32

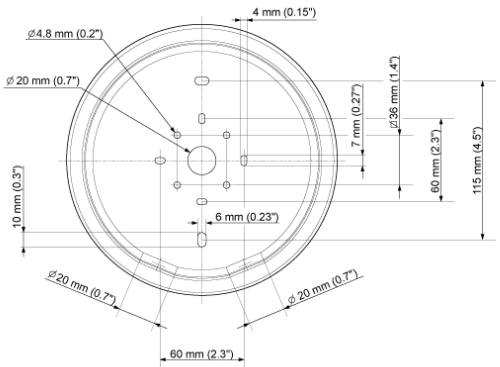
Region	Certification
Europe	CE
	CPD

Installation/configuration notes

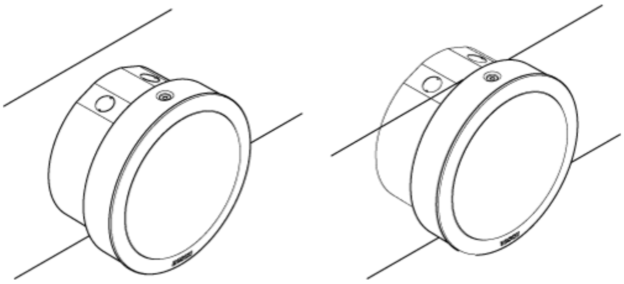
The cabinet is designed for both surface and recessed mounting on walls. The back box provides a selection of mounting holes, even for mounting on U40 and MK installation boxes. The back box has two knockout holes on the topside for two cable glands (not included) for loop-through connection. For extra installation convenience, a safety cord from the back box lets the installer temporarily hang the front grille unit during installation. The cabinet has a three-way terminal block with screw connections suitable for loop-through wiring (including earth).
Four primary taps on the matching transformer allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (in 3 dB steps).



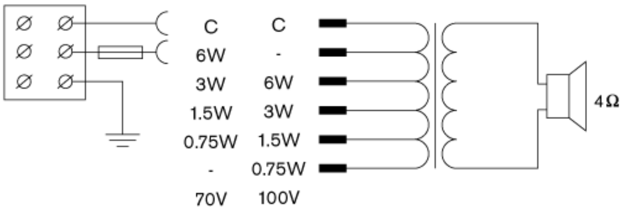
Dimensions in mm (in)


4 mm (0.15")
Ø4.8 mm (0.2")
Ø 20 mm (0.7")
7 mm (0.27")
Ø36 mm (1.4")
60 mm (2.3")
115 mm (4.5")
10 mm (0.3")
6 mm (0.23")
Ø20 mm (0.7")
Ø 20 mm (0.7")
60 mm (2.3")

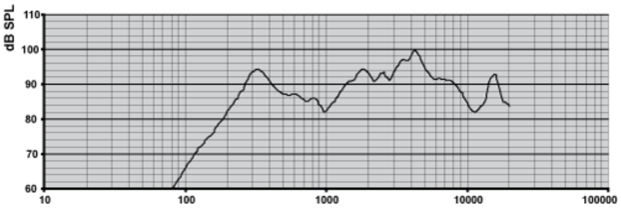
Rear / Installation dimensions in mm (in)



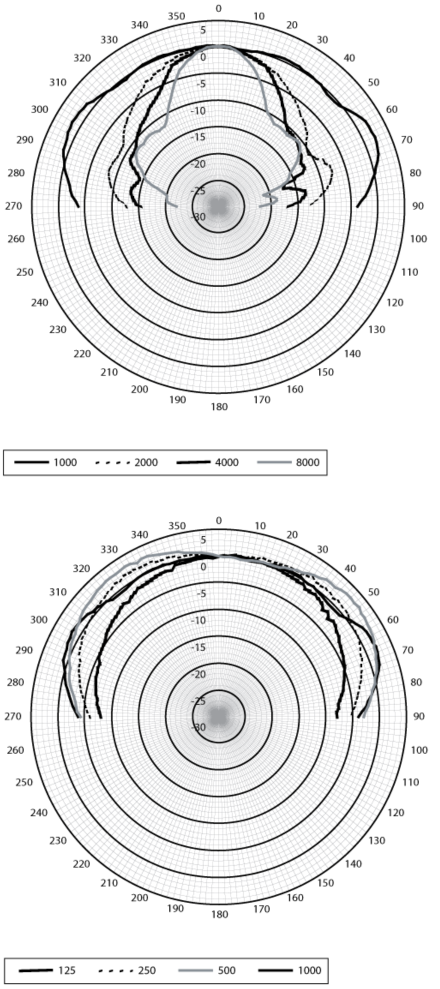
Surface mounted (left) and recessed mounted (right)


C
6W
3W
1.5W
0.75W
-
70V
C
-
6W
3W
1.5W
0.75W
100V
4 Ω

Circuit diagram



Frequency response



Polar diagrams (measured with pink noise)

Octave band sensitivity *

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	73.3	-	-
250 Hz	90.4	-	-
500 Hz	89.0	-	-
1000 Hz	86.0	-	-
2000 Hz	92.4		
4000 Hz	96.6	-	-
8000 Hz	89.9	-	-
A-weighted	-	89.9	96.8
Lin-weighted	-	90.1	96.0

Octave band opening angles

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180

2000 Hz	80	80	
4000 Hz	56	56	
8000 Hz	40	40	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-UM06E-1
1	Installation instruction

Technical specifications

Electrical*

Maximum power	9 W
Rated power (PHC)	6 W
Power tapping	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	94 / 86 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	105 / 97 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 56°
Rated input voltage	70/100 V
Rated impedance	835/1667 ohm
Connector	3-pole screw block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (W x D)	199 x 105 mm (7.8 x 4.1 in)
Weight	1.23 kg (2.71 lb)
Color	White (RAL 9010)
Material (back box and grille)	Steel
Speaker size	152.4 mm (6 in)
Magnet weight	53 g (1.9 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4782/BA/10.

CE
1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0195

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Metal Cabinet 6 W
LB1-UM06E-1
Type A

Ordering information

LB1-UM06E-1 Metal Cabinet Loudspeaker
Cabinet loudspeaker 6 W, circular, metal enclosure, water and dust protected IP 32, EN54-24 certified, white RAL 9010.
Order number **LB1-UM06E-1**

LBC 3011/x1 Panel Loudspeakers

Features

- ▶ High-quality speech and music reproduction
- ▶ Two-way system
- ▶ Simple power setting
- ▶ Flush-mounting in walls, ceilings, or furniture
- ▶ Surface-mounting and flush mounting boxes

The Bosch panel loudspeakers and matching mounting boxes are ideal for built-in sound installations in shops, department stores, schools, offices, hotels and restaurants. They are manufactured and finished to the same exacting standards as all Bosch public address systems and components, guaranteeing high quality, and compatibility throughout the range.

Functions

The 6 W panel is equipped with a woofer and tweeter, enabling excellent quality speech and music reproduction. They are available with or without an integral volume control (LBC 3011/51 and LBC 3011/41, respectively). Nominal output power can be preset to full, half, quarter or eighth-power radiation (in 3 dB steps) by connecting the 100 V line to the appropriate primary taps on the matching transformer via a 2-pole screw connector.
The white (RAL 9010) panels are injection-molded from self-extinguishing, high-impact ABS material (according to UL 94V0). They are finished with an attractive perforated metal grill.
The panel loudspeakers flush-mount into rectangular cut-outs in cavity walls, ceilings, furniture or custom-made cabinets. The panels have provision on the rear side for mounting an optional line/loudspeaker supervision board.
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring.

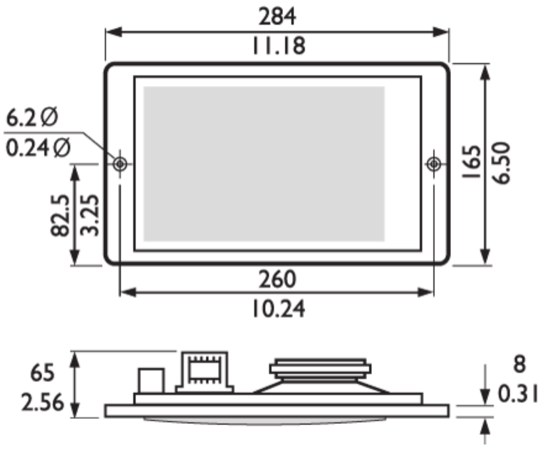
Certifications and approvals

Voice alarm loudspeakers are specifically designed for use in buildings, where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3011/x1 is designed for use in voice alarm systems.

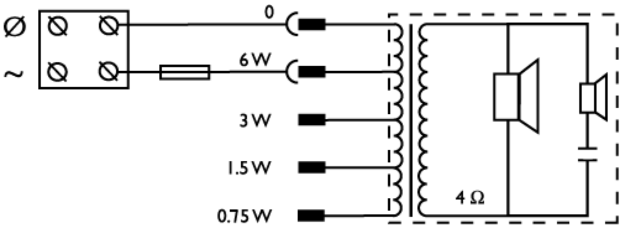
Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8
Self-extinguishing	acc. to UL 94 V0

Installation/configuration notes

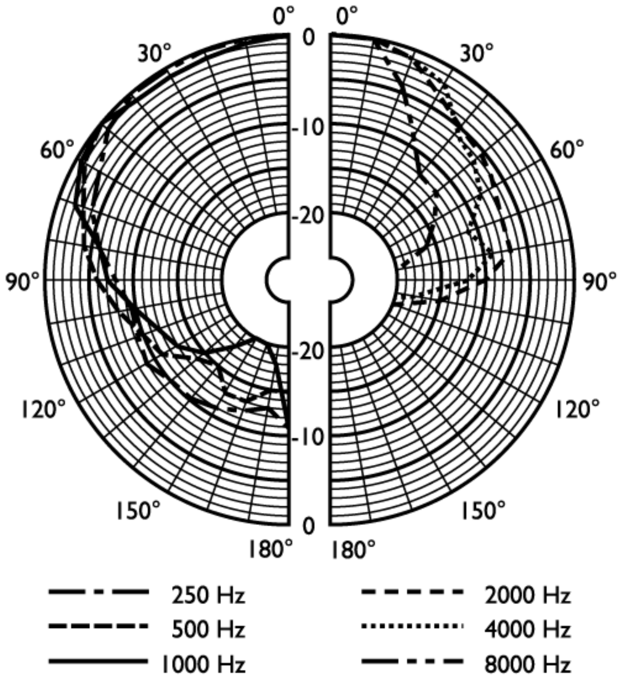
LBC 3011/41



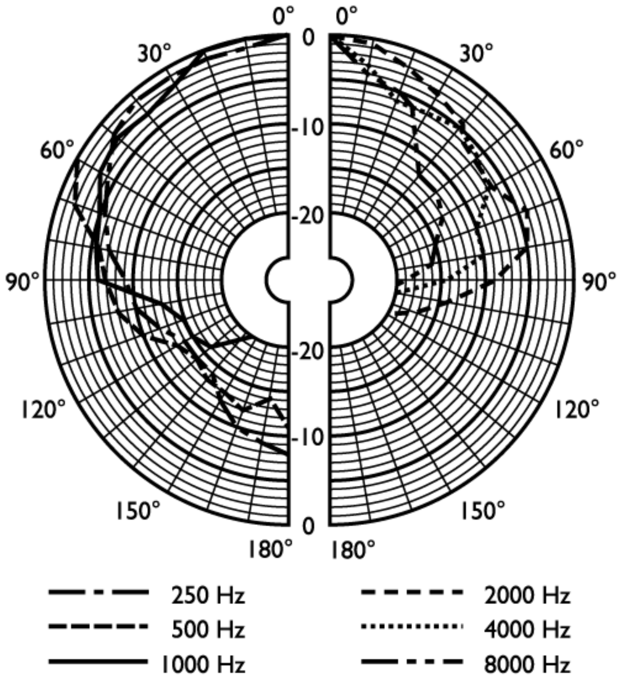
Dimensions in mm (in)



Circuit diagram

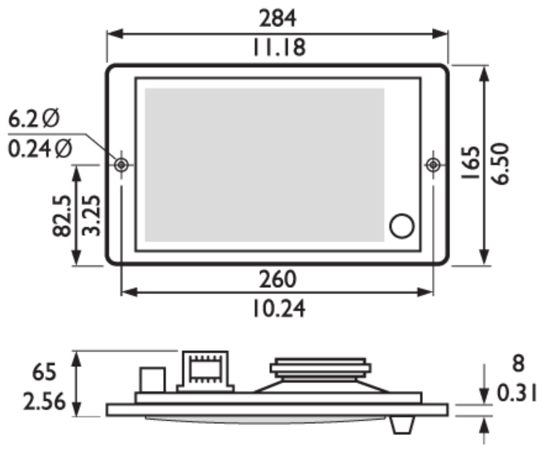


Polar diagram horizontal (measured with pink noise)

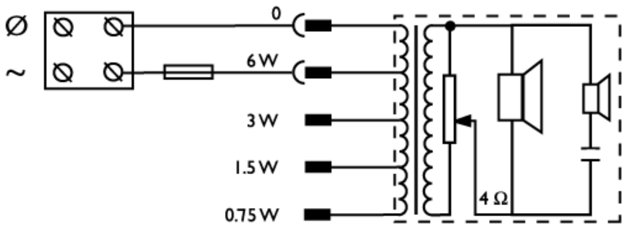


Polar diagram vertical (measured with pink noise)

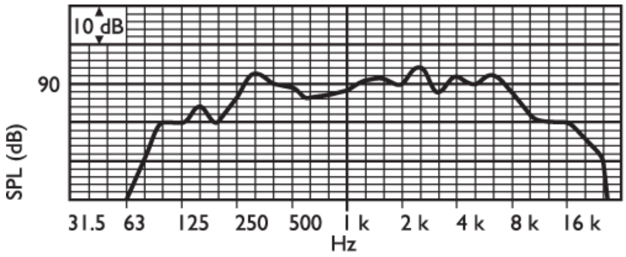
LBC 3011/51


284
11.18
6.2Ø
0.24Ø
82.5
3.25
165
6.50
260
10.24
65
2.56
8
0.31

Dimensions in mm (inch)


Ø
~
0
6 W
3 W
1.5 W
0.75 W
4 Ω

Circuit diagram



Frequency response

Octave band sensitivity *

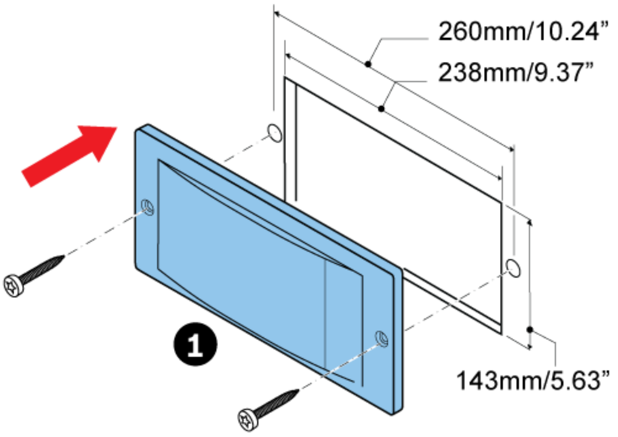
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85	-	93
250 Hz	90	-	98
500 Hz	88	-	96
1000 Hz	88	-	96
2000 Hz	92	-	100
4000 Hz	90	-	98
8000 Hz	89	-	97
A-weighted	-		
Lin-weighted	-		

Octave band opening angles

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180

500 Hz	160	160
1000 Hz	160	180
2000 Hz	115	85
4000 Hz	85	100
8000 Hz	45	50

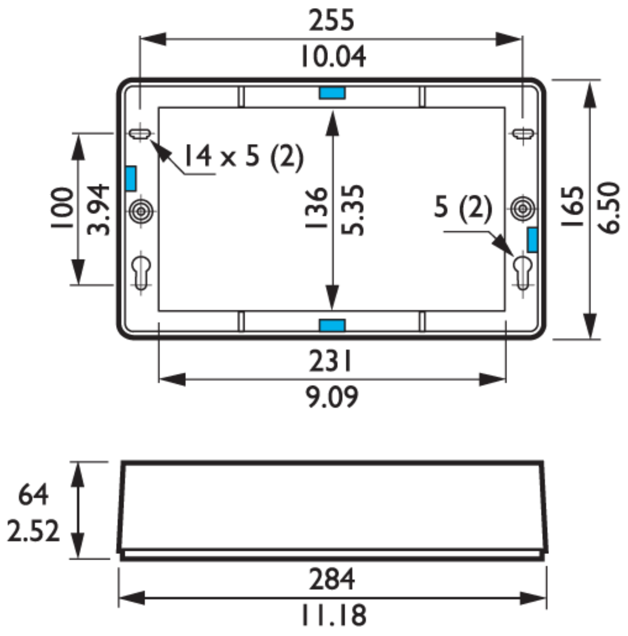
Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dB SPL)


260mm/10.24”
238mm/9.37”
143mm/5.63”
1

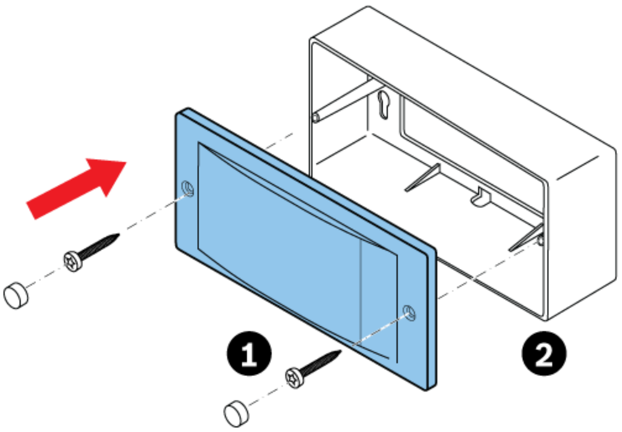
*Recessed mounting in walls and ceilings. Dimensions in mm/in. **(1)** LBC 3011/41 or LBC 3011/51*

Two mounting boxes are available for surface mounting onto hard surfaces or flush-mounting into non-cavity walls. The LBC 3012/01 accommodates the panel loudspeaker for a self-contained unit for surface mounting.

LBC 3012/01 Mounting box for surface mounting

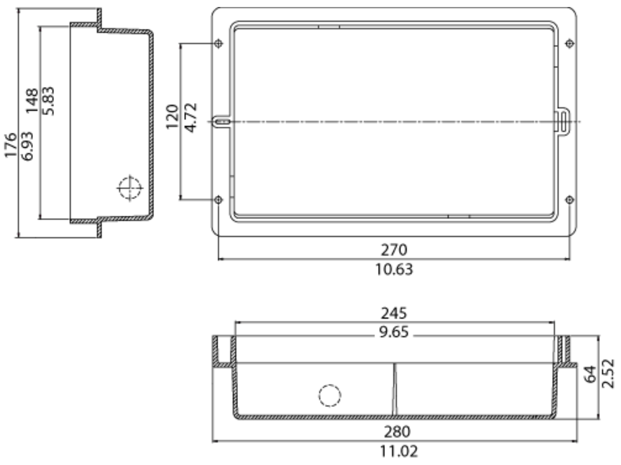

255
10.04
14 x 5 (2)
100
3.94
136
5.35
5 (2)
165
6.50
231
9.09
64
2.52
284
11.18

Dimensions in mm (in) with knockout holes

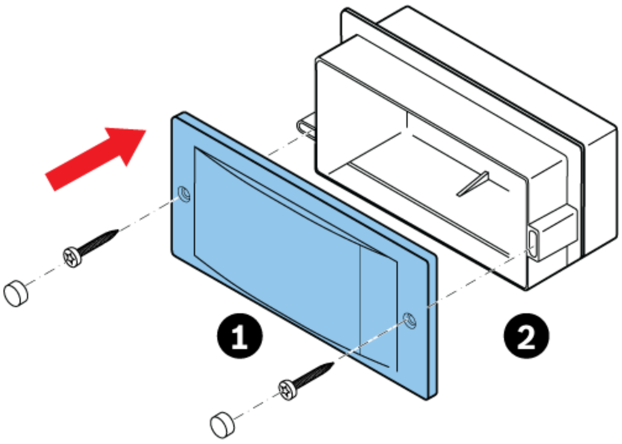


*Surface mounting. **(1)** LBC 3011/41 or LBC 3011/51. **(2)** LBC 3012/01*

LBC 3013/01 Mounting box for flush mounting


176
6.93
148
5.83
120
4.72
270
10.63
245
9.65
64
2.52
280
11.02

Dimensions in mm (in)



*Flush mounting. **(1)** LBC 3011/41 or LBC 3011/51. **(2)** LBC 3013/01*

Technical specifications

Electrical* LBC 3011/41 and LBC 3011/51

Max power	9 W
Rated power (PHC)	6 / 3 / 1.5 / 0.75 W

Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Effective frequency range (-10 dB)	75 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	160° / 85°
vertical	180° / 100°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole screw

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (HxWxD)	165 x 284 x 59.5 mm 6.49 x 11.18 x 2.34 in
Mounting cut-out (HxW)	143 x 238 mm 5.63 x 9.37 in
Weight	1.2 kg (2.64 lb)
Color	White (RAL 9010)
Speaker size	2" / 4"
Magnet weight	48 g / 150 g (1.7 oz / 5.3 oz)

Mechanical LBC 3012/01

Dimensions (HxWxD)	165 x 284 x 64 mm 6.49 x 11.18 x 2.52 in
Weight	238 g (8.40 oz)
Color	White (RAL 9010)

Mechanical LBC 3013/01

Dimensions (HxWxD)	176 x 280 x 64 mm 6.93 x 11.03 x 2.52 in
Weight	307 g (10.83 oz)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3011/41 Panel Loudspeaker without Volume Control
Panel loudspeaker 6 W, rectangular ABS front with metal grille, two-way system, without volume control, white RAL 9010.
Order number **LBC3011/41**

LBC 3011/51 Panel Loudspeaker with Volume Control
Panel loudspeaker 6 W, rectangular ABS front with metal grille, two-way system, with volume control, white RAL 9010.
Order number **LBC3011/51**

Accessories

LBC 3012/01 Surface Mounting Box
Surface mounting box for LBC3011/41 or LBC3011/51 panel loudspeaker, rectangular, ABS material, white RAL 9010.
Order number **LBC3012/01**

LBC 3013/01 Flush Mounting Box
Flush mounting box for LBC3011/41 or LBC3011/51 panel loudspeaker, rectangular, ABS material, white RAL 9010.
Order number **LBC3013/01**

LBC 3018/00 Metal Cabinet Loudspeaker

Features

- Suitable for speech and music reproduction
- Robust metal enclosure
- Surface and/or recessed mounting
- Unobtrusive in virtually all interiors
- Recommended for voice evacuation systems

The LBC 3018/00 cabinet loudspeaker delivers professional performance from a robust, yet aesthetically designed metal enclosure. It is an ideal loudspeaker for indoor use in offices, schools, car parking, shopping centers and in areas where vandalism is a potential hazard.

Functions

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of PA-systems is subject to official regulations. The LBC 3018/00 is designed for voice alarm systems, and is compliant with British Standard BS 5839-8.
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring.
The cabinets are equipped with a high efficiency, dual-cone loudspeaker offering a wide frequency range suitable for both speech and music reproduction.

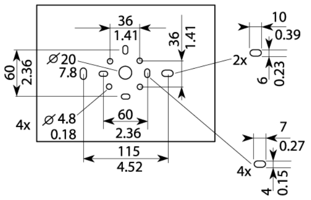
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

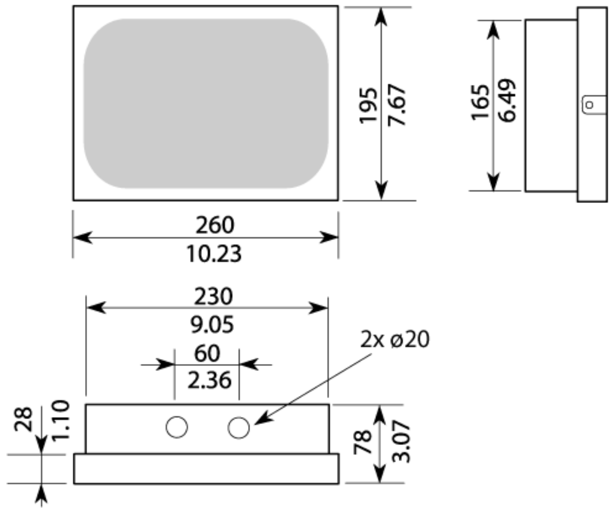
Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8

Region	Certification
Europe	CE
Poland	CNBOP
	CNBOP

Installation/configuration notes

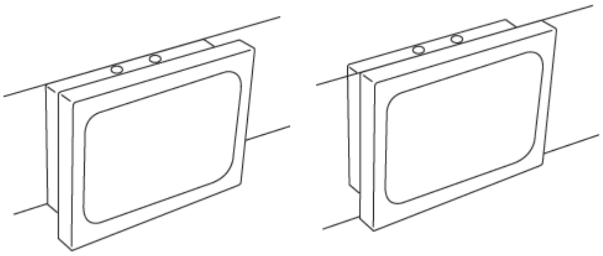


Mounting dimensions in mm (in)



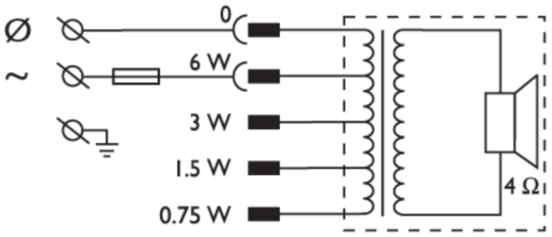
Dimensions in mm (in)

The cabinet is designed for both surface mounting on walls and recessed mounting into brick or concrete walls. The backbox of the cabinet provides a selection of mounting holes, even for mounting onto U40 and MK installation boxes. The backbox has two knockout holes on the topside for two cable glands for loop-through connection. For extra convenience, a safety cord from the backbox lets the installer temporarily hang the front grille unit during installation.

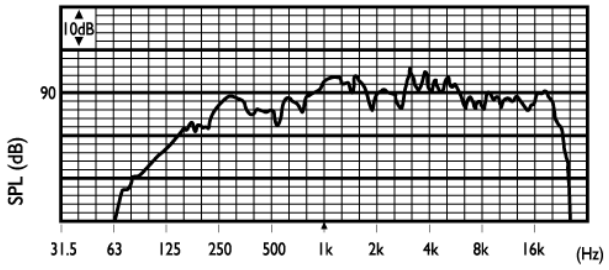


Surface mounted (left) and recessed (right) mounted

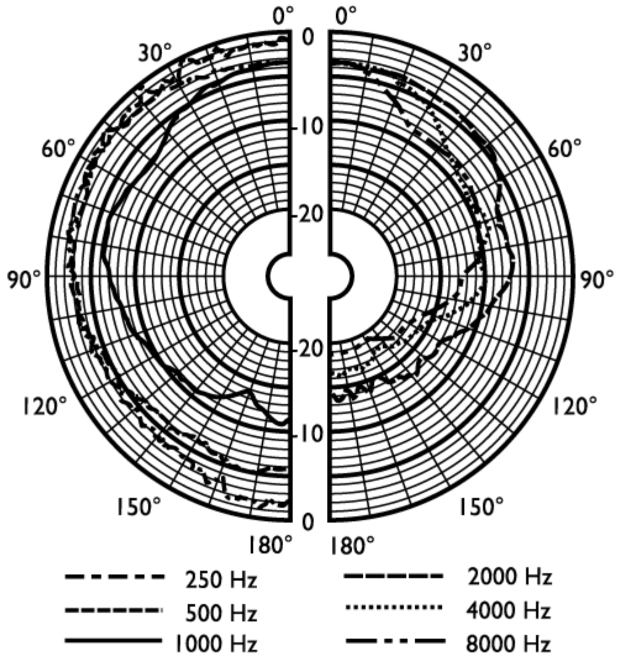
The cabinet has a three-way terminal block with screw connections suitable for loop-through wiring (including earth) Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (in 3 dB steps).



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	84	93	94	97	97	93

SPL max.	92	101	102	105	105	103
Q-factor	2.5	3.3	7.9	8.5	12.9	14.2
Efficiency	0.32	2.2	4	7.1	5.6	2.5
H. angle	180	180	120	85	55	40
V. angle	180	180	80	110	60	35

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power (PHC)	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	102 dB / 94 dB (SPL)
Effective frequency Range (-10 dB)	150 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	120 º / 55 º
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	3-pole screw

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	195 x 260 x 80 mm (7.68 x 10.24 x 3.15 in)
Weight	2.6 kg (5.78 lb)
Color	White (RAL 9010)
Speaker size	152.4 mm (6 in)
Magnet weight	150 g (5.3 oz)

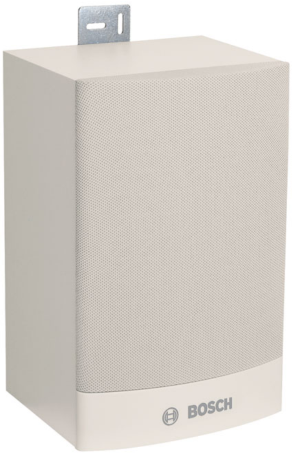
Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3018/00 Metal Cabinet Loudspeaker
9 W
Order number **LBC3018/00**

LB1-UW06-Fx Cabinet Loudspeakers



Features

- Good speech intelligibility and background music reproduction
- Finished in white or black
- MDF construction
- Mounting brackets for wall or ceiling mounting
- Complies with international installation and safety regulations

The LB1-UW06-Fx is a 6 W, general-purpose, cost-effective loudspeaker for indoor use. Two brackets, fixed to the rear panel, are provided for quick and easy mounting on a wall or ceiling. The cabinet is available in the colors black or white.

Functions

The robust, solid MDF (medium density fiberboard) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color.

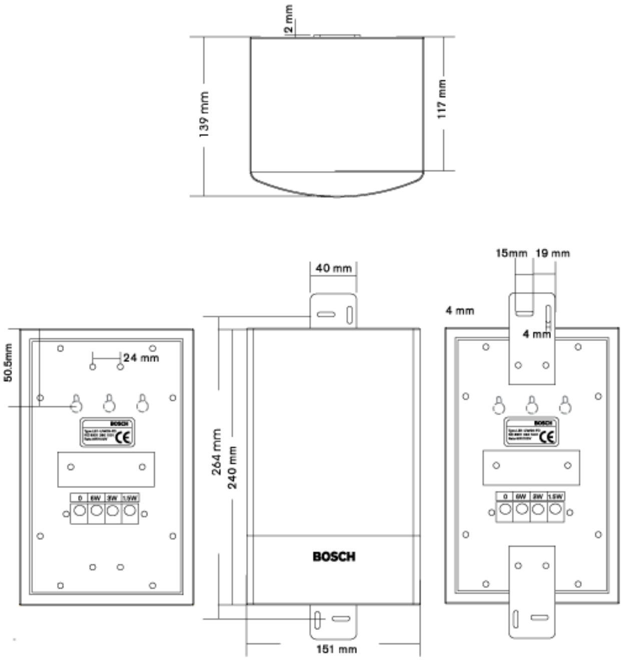
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

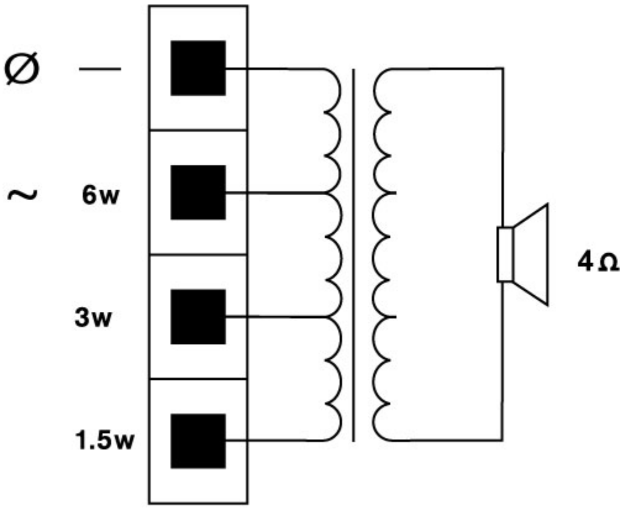
Safety	acc. to EN 60065

Installation/configuration notes

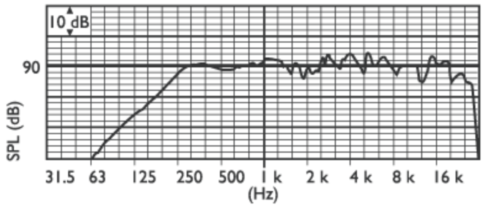
Two mounting brackets, fixed to the rear panel provide easy and quick wall mounting or ceiling mounting. If these are not desired, they can be removed, and the unit can still be wall mounted using the three keyholes in the rear panel.
A convenient, easy-to-use, 4-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 volt matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



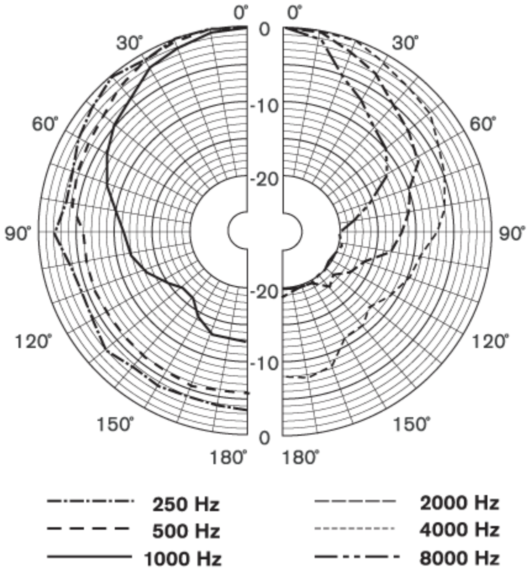
Dimensions in mm



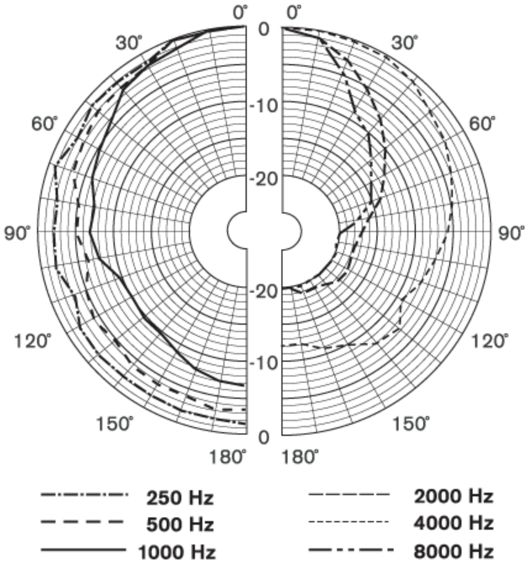
Circuit diagram



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 139 mm (9.4 x 5.9 x 5.5 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-UW06-FD Unidirectional Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, supplied with mounting brackets for wall or ceiling mounting.
Order number **LB1-UW06-FD**

LB1-UW06-FL Unidirectional Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, supplied with mounting brackets for wall or ceiling mounting.
Order number **LB1-UW06-FL**

LB1-UW06x-x Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Available in black or white
- MDF construction
- With or without integral volume control
- Complies with international installation and safety regulations

The LB1-UW06x-x is a 6 W, general-purpose, cost-effective loudspeaker for indoor use, with or without volume control. Keyholes at the rear are provided for quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Functions

The robust, solid MDF (medium density fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color. The angled front baffle results in improved high frequency reproduction in the listening area.

The speaker is available with or without a volume control.

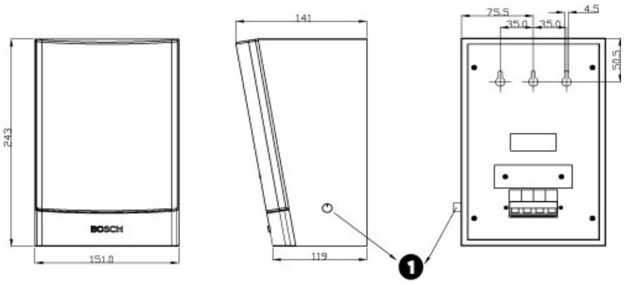
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

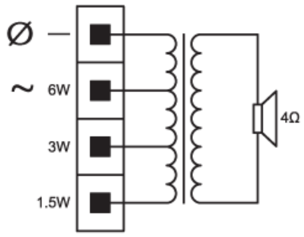
Safety	acc. to EN 60065

Installation/configuration notes

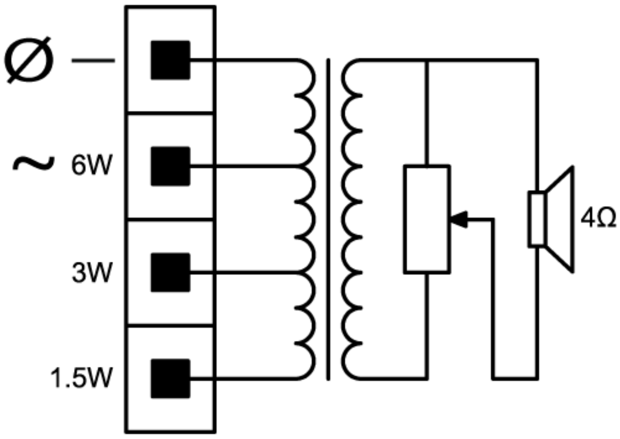
Three keyholes in the rear panel provide easy and quick wall mounting.
A convenient, easy-to-use, 4-pole push-in terminal block is on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



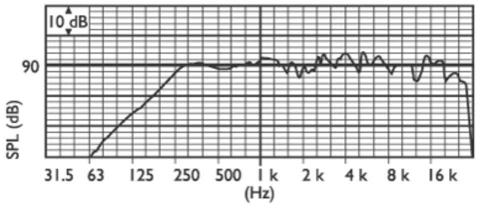
Dimensions LB1-UW06-x in mm showing volume control (1)



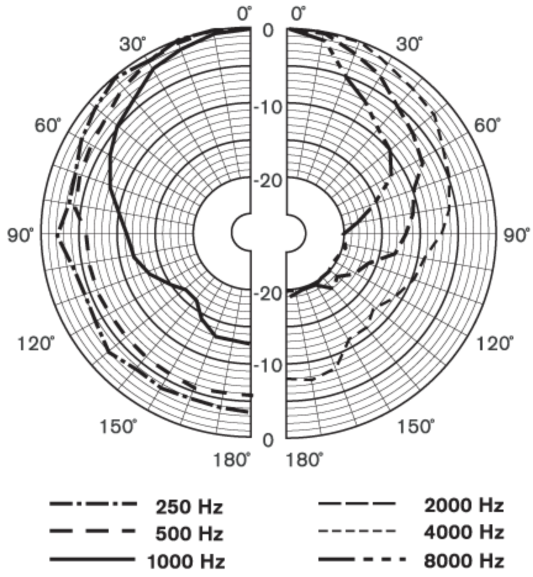
Circuit diagram LB1-UW06-x



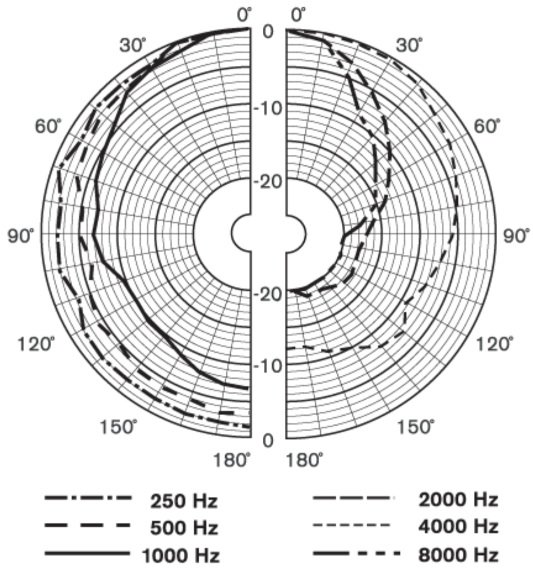
Circuit diagram LB1-UW06V-x



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	100 dB / 92 dB (SPL)
Effective frequency range	180 Hz to 20 kHz (-10 dB)
Opening angle horizontal vertical	1 kHz / 4 kHz (-6 dB) 165° / 95° 158° / 73°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	243 x 151 x 141/119 mm (9.5 x 5.9 x 5.6/4.7 in)
Weight	0.9 kg (2 lb)
Color cabinet / cloth (D) cabinet / cloth (L)	Black (D) or white (L) Matches RAL 9004 / RAL 9004 Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-UW06-D Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW06-D**

LB1-UW06V-D Cabinet Loudspeaker with Volume Control
Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW06V-D**

LB1-UW06-L Cabinet Loudspeaker
Cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW06-L**

LB1-UW06V-L Cabinet Loudspeaker with Volume Control
Cabinet loudspeaker 6 W with volume control, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW06V-L**

LB1-CW06-x Corner Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Special shape for mounting in corners
- Available in black or white
- MDF construction
- Compliancy with international installation and safety regulation

The LB1-CW06-x is a 6 W, general-purpose cost,-effective loudspeaker for indoor use. Two brackets with keyholes, fixed on one side provide quick and easy mounting in corners between two walls, or between a wall and ceiling. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in white or black. The ABS fronts are covered with fine woven cloth in matching color.

The cabinet shapes allow installation in corners between walls, and between wall and ceiling.

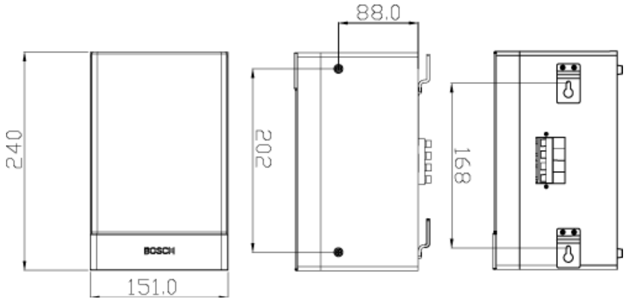
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

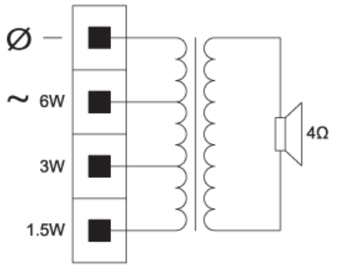
Safety	acc. to EN 60065

Installation/configuration notes

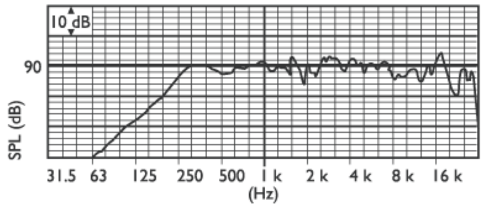
Two keyhole brackets at one side of the cabinet are provided for easy and quick wall mounting. The other side of the cabinet is provided with two rubber feet for absorbing unwanted vibrations and secure mounting.
A convenient easy-to-use, 4-pole push-in terminal block is present on the side for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power, or quarter-power radiation (in 3 dB steps).



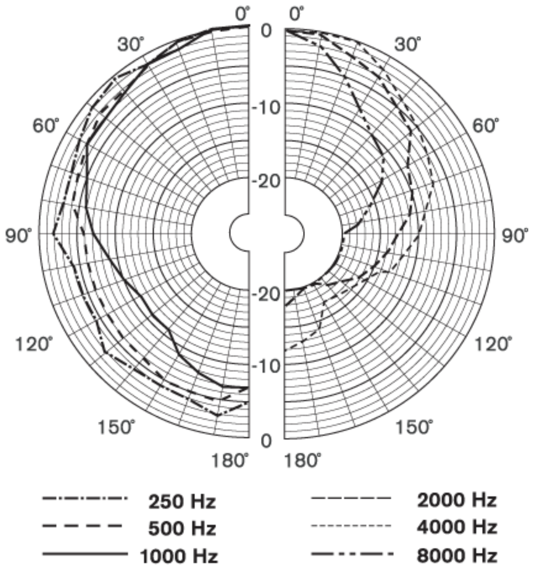
Dimensions in mm



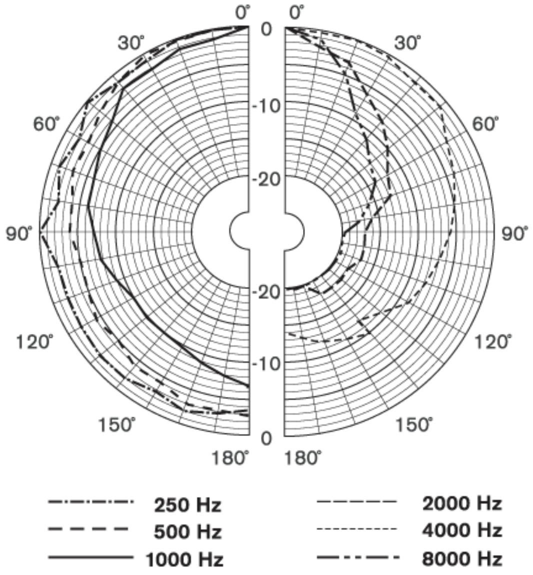
Circuit diagram



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	180 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	165° / 95°
vertical	150° / 75°
Rated input voltage	100 V
Rated impedance	1667 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 151 x 138 mm (9.5 x 5.9 x 5.6 in)
Weight	0.8 kg (1.8 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-CW06-D Corner Cabinet Loudspeaker
Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in black, special shape for mounting in corners, supplied with two brackets with keyholes.
Order number **LB1-CW06-D**

LB1-CW06-L Corner Cabinet Loudspeaker
Corner cabinet loudspeaker 6 W, MDF enclosure with fine-woven cloth front, finished in white, special shape for mounting in corners, supplied with two brackets with keyholes.
Order number **LB1-CW06-L**

LB1-UW12-x Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Available in black or white
- MDF construction
- Complies with international installation and safety regulations

The LB1-UW12-x is a 12 W, general-purpose, cost-effective loudspeaker for indoor use. Keyholes at the rear provide quick and easy wall mounting. The angled front baffle results in a better sound in the listening area. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color.

The angled front baffle results in improved high frequency reproduction in the listening area.

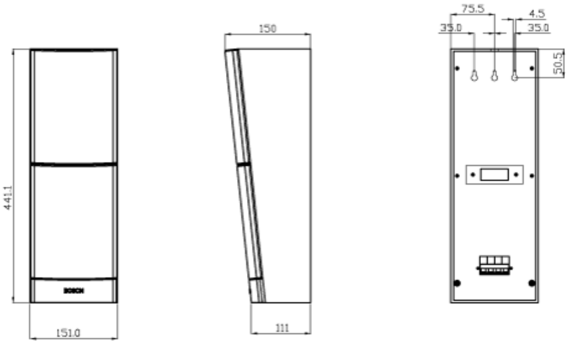
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

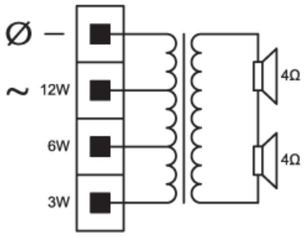
Safety	acc. to EN 60065

Installation/configuration notes

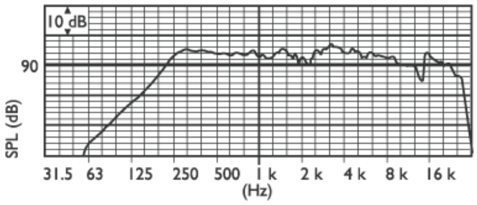
Three keyholes in the rear panel provide easy and quick wall mounting. A convenient easy-to-use, 4-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



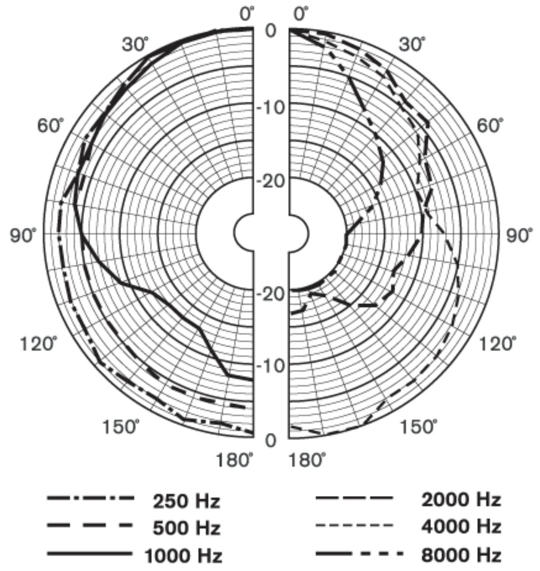
Dimensions in mm



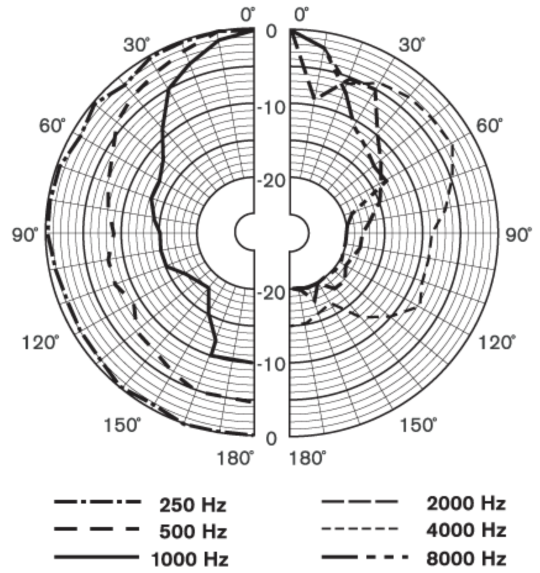
Circuit diagram



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	104 / 93 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	195° / 95°
vertical	69° / 17°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	441 x 151 x 150/111 mm (17.4 x 5.9 x 5.9/4.4 in)
Weight	2.5 kg (5.5 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-UW12-D Cabinet Loudspeaker
Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-UW12-D**

LB1-UW12-L Cabinet Loudspeaker
Cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth front, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-UW12-L**

LB1-BW12-x Bidirectional Cabinet Loudspeakers

BOSCH
BOSCH

Features

- Good speech intelligibility and background music reproduction
- Wedge shaped design
- Available in black or white
- MDF construction
- Complies with international installation and safety regulations

The LB1-BW12-x is a 12 W, cost-effective, bidirectional loudspeaker for indoor use. The baffle design creates a wide opening angle, making this loudspeaker very suitable for use in long corridors. Keyholes at the rear provide quick and easy wall mounting. The cabinet is available in black or white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of white or black. The ABS fronts are covered with fine woven cloth in matching color.

The cabinets have two dual cone loudspeaker drivers, mounted on an angled baffle, providing a wide opening angle. This model is intended for use in long corridors, such as in shopping arcades.

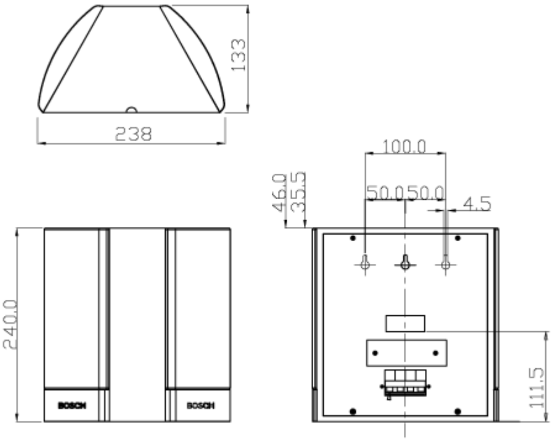
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

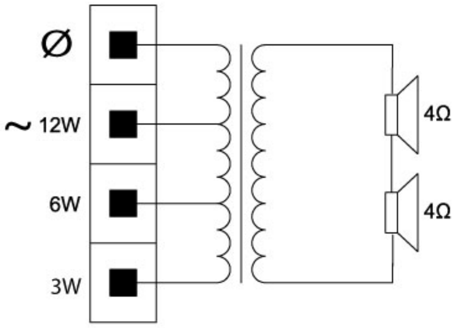
Safety	acc. to EN 60065

Installation/configuration notes

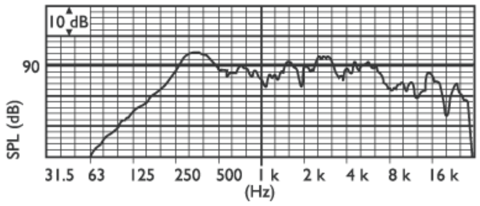
Three keyholes in the rear panel provide easy and quick wall mounting. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100-volt, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



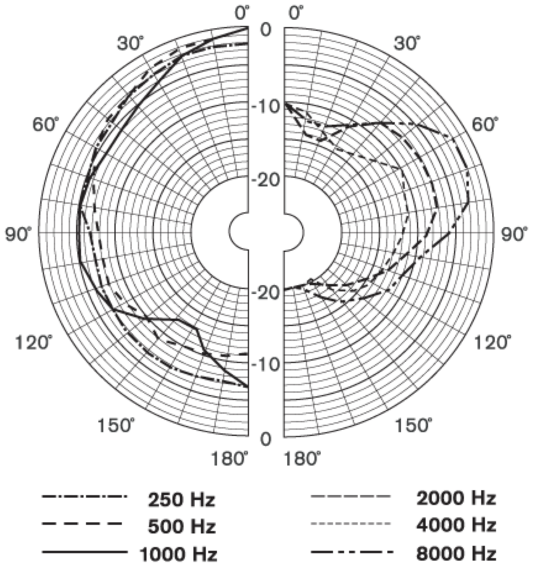
Dimensions in mm



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Technical specifications

Electrical*

Maximum power	18 W
Rated power	12 / 6 / 3 W
Sound pressure level at 12 W / 1 W (1 kHz, 1 m)	97 / 86 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	270° / 165°
Rated input voltage	100 V
Rated impedance	833 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	240 x 238 x 133 mm (9.4 x 9.3 x 5.24 in)
Weight	1.5 kg (3.3 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-BW12-D Bi-Directional Cabinet Loudspeaker
Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in black, with 3 keyholes for wall mounting.
Order number **LB1-BW12-D**

LB1-BW12-L Bi-Directional Cabinet Loudspeaker
Bidirectional cabinet loudspeaker 12 W, MDF enclosure with fine-woven cloth fronts, finished in white, with 3 keyholes for wall mounting.
Order number **LB1-BW12-L**

LB2-UCxx-x Premium-sound Cabinet Loudspeaker Range

Features

- High-fidelity music and speech reproduction
- Selectable 8 ohm, 70 V and 100 V inputs
- Compact yet robust ABS enclosure
- Supplied with adjustable mounting bracket
- Complies with international installation and safety regulations

The LB2-UCxx-xPremium-sound cabinet loudspeakers are intended for clear reproduction of speech, foreground and background music to be used in general indoor and outdoor applications. The Premium-sound cabinet loudspeaker range consists of a 15 W and 30 W model, available in a light or dark color. The loudspeakers have selectable 8 ohm, 70 V and 100 V inputs. Typical applications are: theme bars, music restaurants, theme parks, retail outlets, audio visual, boardrooms and offices, exhibition areas, showrooms, fitness centre's and presentation environments.

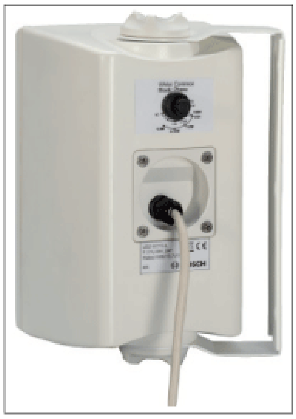
Certifications and approvals

Quality assurance
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to EN 60529 IP x4
Self extinguishing	acc. to UL94 V 0

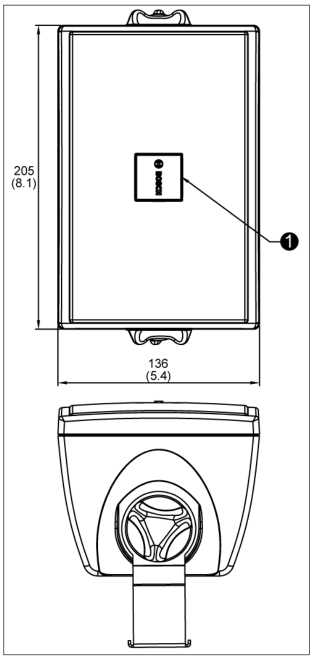
Installation/configuration notes

The cabinets include a built-in transformer that offers a selection of nominal full power, half power, quarter power or eight power radiation (i.e. in 3 dB steps) for 70 V, 100 V or 8 Ohm bypass.
Selection is done by a convenient switch on the rear enclosure.
A two meter long twin-core loudspeaker cable (in matching color with the cabinet) is connected to the loudspeaker. The core ends are stripped ready for use.
The cabinets can be mounted horizontally to allow the loudspeaker to be directed up or down, or vertically to allow left and right rotation by means of a steel U-shaped wall bracket (standard supplied).
The rotatable logo can be easily adjusted to match the mounting orientation.



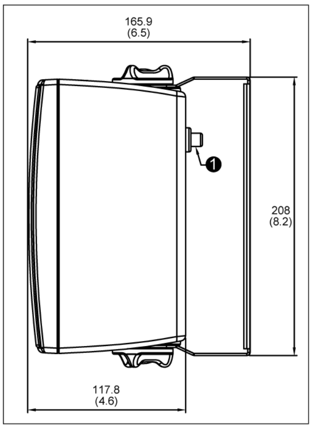
Rear view LB2-UC15-30-D/L

LB2-UC15-D/L



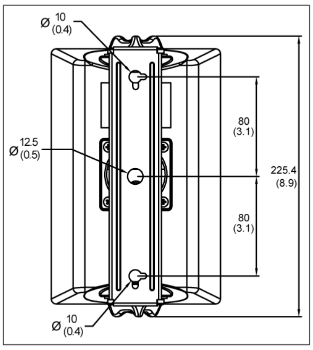
1	Rotatable logo

Mechanical diagram: front and top view in mm (in.)

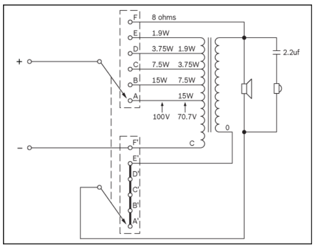

165.9
(6.5)
208
(8.2)
117.8
(4.6)
1

1	Power tapping switch

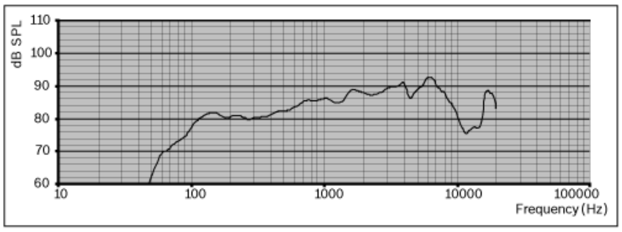
Mechanical diagram: side view in mm (in.)


Ø 10
(0.4)
Ø 12.5
(0.5)
80
(3.1)
225.4
(8.9)
80
(3.1)
Ø 10
(0.4)

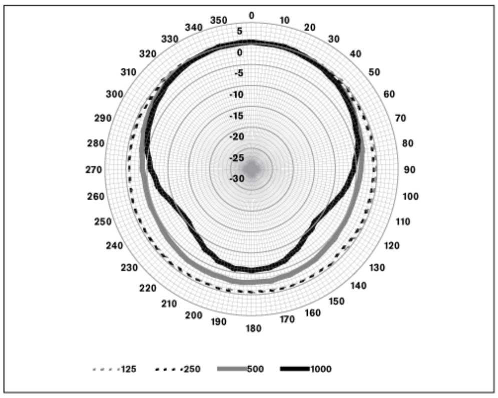
Mechanical diagram: rear view in mm (in.)


+
–
F
E
D
C
B
A
8 ohms
1.9W
3.75W 1.9W
7.5W 3.75W
15W 7.5W
15W
100V 70.7V
0
C
2.2uf

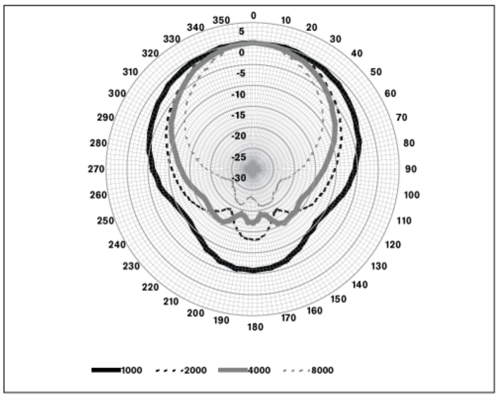
Circuit diagram



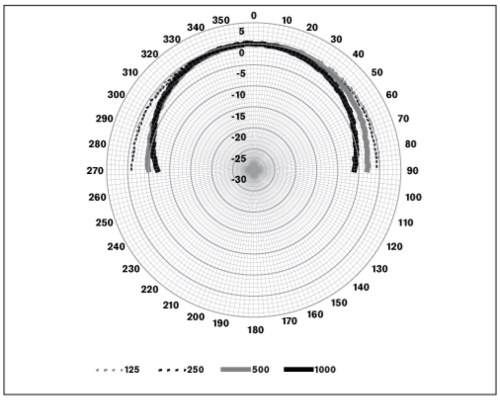
Frequency response



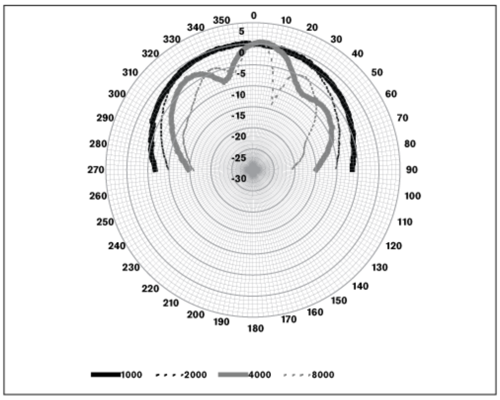
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

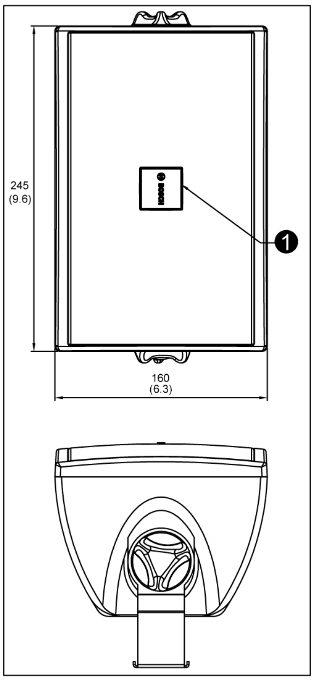
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	80.6	-	-
250 Hz	80.4	-	-
500 Hz	82.7	-	-
1000 Hz	85.9	-	-
2000 Hz	87.8	-	-
4000 Hz	88.9	-	-
8000 Hz	88.8	-	-
A-weighted	-	84.7	95.9
Lin-weighted	-	85.0	95.6

Octave band opening angles

	Horizontal	Vertical
125 Hz	360	> 180
250 Hz	360	> 180
500 Hz	360	> 180
1000 Hz	179	168
2000 Hz	115	121
4000 Hz	101	35
8000 Hz	76	44

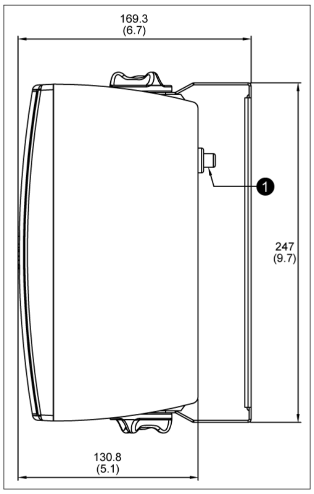
Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dB SPL)

LB2-UC30-D/L


245
(9.6)
160
(6.3)
1

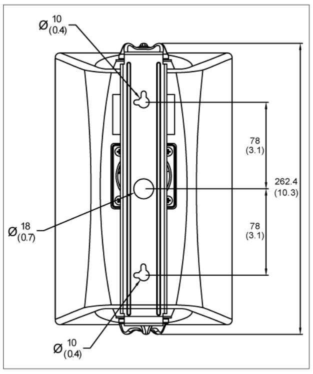
1	Rotatable logo

Mechanical diagram: front and top view in mm (in.)

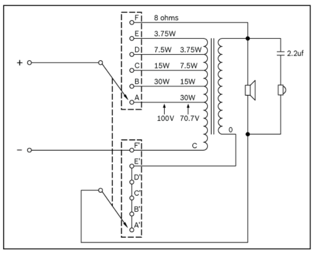

169.3
(6.7)
1
247
(9.7)
130.8
(5.1)

1	Power tapping switch

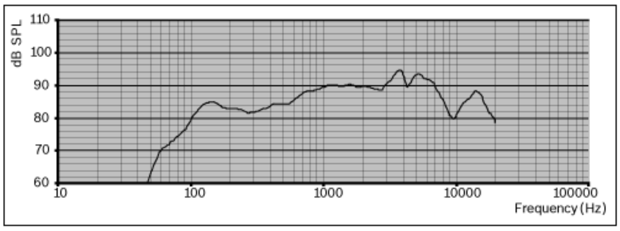
Mechanical diagram: side view in mm (in.)


Ø 10 (0.4)
78 (3.1)
262.4 (10.3)
Ø 18 (0.7)
78 (3.1)
Ø 10 (0.4)

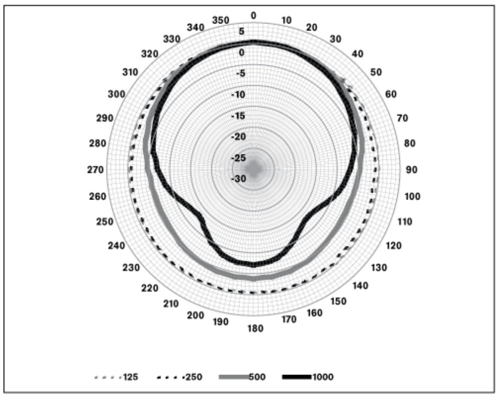
Mechanical diagram: rear view in mm (in.)


F 8 ohms
E 3.75W
D 7.5W 3.75W
C 15W 7.5W
B 30W 15W
A 30W
100V 70.7V
+
−
2.2uf
0
C
F'
E'
D'
C'
B'
A'

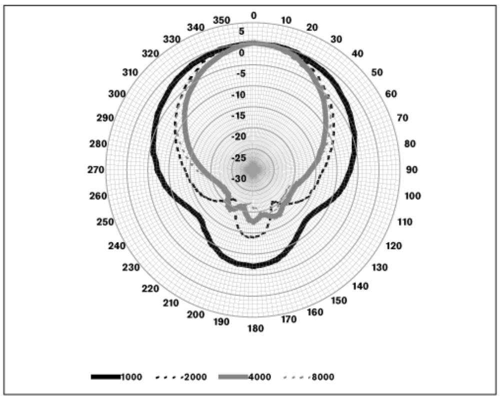
Circuit diagram



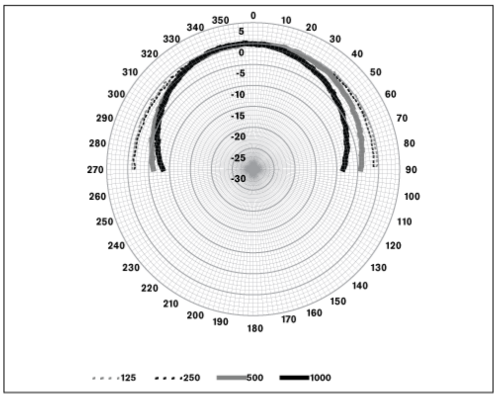
Frequency response



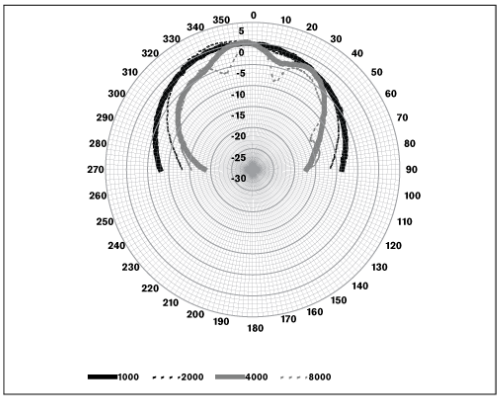
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	83.2	-	-
250 Hz	82.6	-	-
500 Hz	85.1	-	-
1000 Hz	89.5	-	-
2000 Hz	89.8	-	-
4000 Hz	92.8	-	-
8000 Hz	88.6	-	-
A-weighted	-	87.5	100.9
Lin-weighted	-	87.6	100.5

Octave band opening angles

	Horizontal	Vertical
125 Hz	360	> 180
250 Hz	360	> 180
500 Hz	360	> 180
1000 Hz	160	150
2000 Hz	97	116
4000 Hz	81	90
8000 Hz	93	52

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dB SPL)

Parts included

Quantity	Components
1	LB2-UCxx-x
1	Mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Product	LB2-UC15-D LB2-UC15-L	LB2-UC30-D LB2-UC30-L
Description	Premium-sound Cabinet Loudspeaker	Premium-sound Cabinet Loudspeaker
Maximum power	22.5 W	45 W
Rated power (PHC)	15 W	30 W
Power tapping	15/7.5/3.75/1.9 W	30/15/7.5/3.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	98/86 dB (SPL)	105/90 dB (SPL)

Effective frequency range (-10 dB)	95 Hz to 19.5 kHz	100 Hz to 18.5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	179° / 101° (hor.) 168° / 35° (ver.)	160° / 81° (hor.) 150° / 90° (ver.)
Rated input voltage	11/70/100 V	15.5/70/100 V
Rated impedance	8/326/667 ohm	8/163/333 ohm
Transducers	101.6 mm (4”) woofer, 13 mm (0.51 “) dome tweeter	127 mm (5”) woofer, 13 mm (0.51 “) dome tweeter
Connection	2 m (78.8 in.) two-wire cable	2 m (78.8 in.) two-wire cable

** Technical performance data acc. to IEC 60268-5*

Mechanical

Dimensions (HxWxD)	205x136x117 mm 8.07x5.35x4.60 in	250x 60x140 mm 9.84x6.30x5.51 in
Weight	Approx. 1.9 kg (4.18 lb)	Approx. 2.4 kg (5.29 lb)
Color	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LB2-UC15-D Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, charcoal RAL 7021.
Order number **LB2-UC15-D**

LB2-UC15-L Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 15 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, white RAL 9010.
Order number **LB2-UC15-L**

LB2-UC30-D Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, charcoal RAL 7021.
Order number **LB2-UC30-D**

LB2-UC30-L Premium-sound Cabinet Loudspeaker
Cabinet loudspeaker 30 W, ABS enclosure, U-bracket mounting, fixed 2 m twin-core connection cable, water and dust protected IP65, white RAL 9010.
Order number **LB2-UC30-L**

LB1-UMx0E Premium-sound Cabinet Loudspeaker Range

Features

- High-fidelity music and speech reproduction
- Supplied with adjustable wall-mounting bracket
- Self-restoring overload protection
- Provision for internal mounting of the optional line / loudspeaker supervision board
- EN 54-24 certified

The Premium-sound range of cabinets is intended for clear reproduction of speech, foreground and background music to be used in general indoor and outdoor applications. The range comprises two models, offering a choice of 20 W or 50 W power handling capacity. The enclosures are made from aluminum with ABS top and bottom covers and are available in charcoal (D) and white (L).
Typical applications for these products are: theme bars, music restaurants, theme parks, retail outlets, audio visual, boardrooms and offices, exhibition areas and presentation environments, fitness centre.
Its excellent sound reproduction capability is attributed the superb to the use of high-quality driver components and crossover network design.
A self-restoring passive element protects the high frequency driver against incidental overload.
A three-way ceramic terminal block with screw connections suitable for loop-through wiring is located in the compartment in the base of the unit.
An easy to install, sturdy wall mounting bracket is standard supplied. The same bracket can be used in combination with the universal floor stand LBC 1259/00 for temporary installations.
All models are supplied with a built-in 70/100 V transformer with taps on the primary winding for full-power, half-power, quarter-power and one-eighth power radiation. These taps are connected to a rotary vari-tap switch located in the compartment in the base of the enclosure, to allow simple output power setting. A low ohmic connection is also provided on the vari-tap switch.

Functions

Voice alarm

Voice alarm loudspeakers are specifically designed for use in buildings, where the performance of Public Address systems is subject to official regulations. The LB1-UMx0E-x are designed for voice alarm systems, and are EN 54-24 certified and compliant with BS 5839-8 and EN 60849.

Protection

The loudspeakers have built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety

The loudspeakers have a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The cabinets have a provision for internally mounting the optional line/loudspeaker supervision board.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to EN 54-24
	according to BS 5839-8 / EN 60849
Water and dust protection	according to EN 60529 IP 65
Self-extinguishing ABS	according to UL 94 V 0
Wind-force	according to NEN 6702:2007 + A1: 2008, Bft11

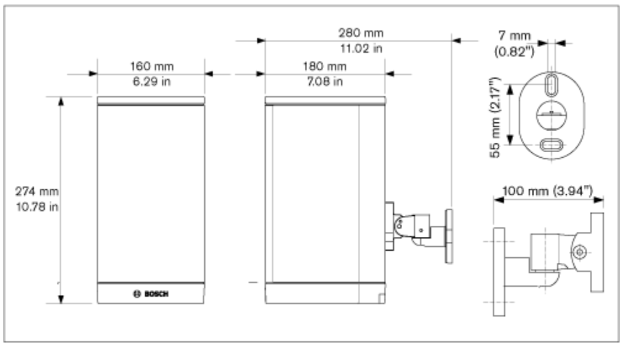
Region	Certification
Europe	CPD

Installation/configuration notes

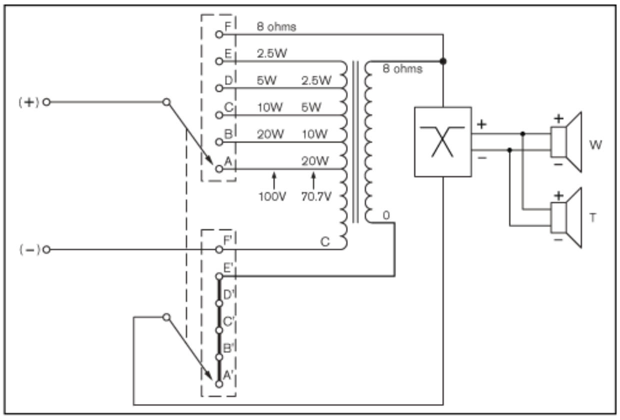
LB1-UMx0E-D/L

Mounting bracket

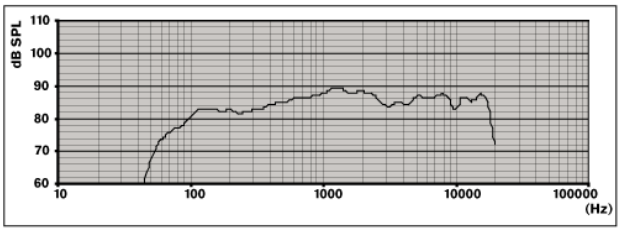
LB1-UM20E-D/L


280 mm
11.02 in
7 mm
(0.82")
160 mm
6.29 in
180 mm
7.08 in
55 mm (2.17")
100 mm (3.94")
274 mm
10.78 in
BOSCH

Dimensions

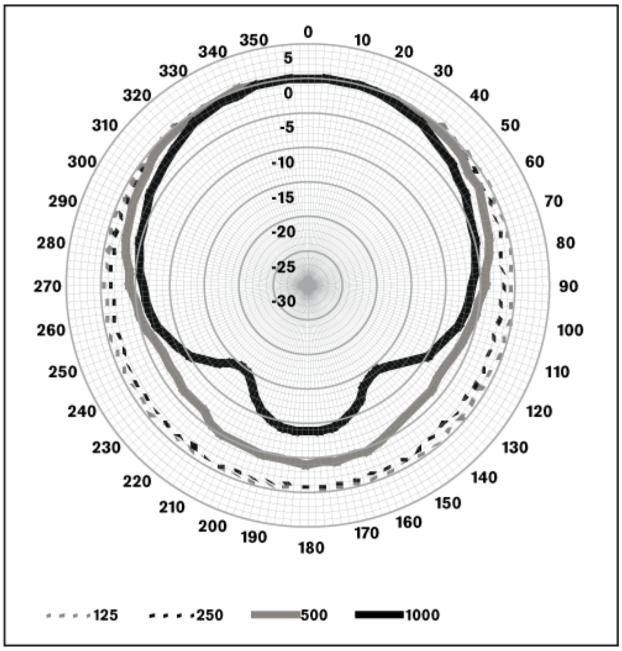

F
8 ohms
E
2.5W
D
5W
2.5W
C
10W
5W
B
20W
10W
A
20W
100V
70.7V
8 ohms
0
C
(+)
(−)
F'
E'
D'
C'
B'
A'
+
−
W
T

Circuit diagram

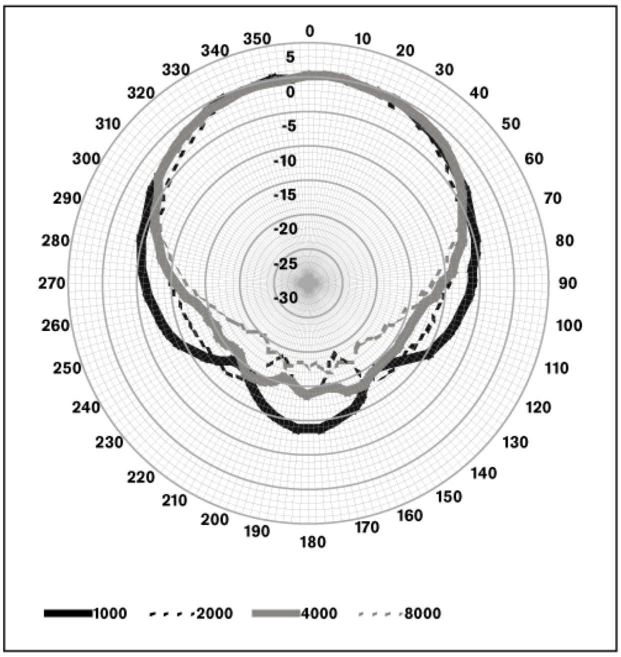


Frequency response

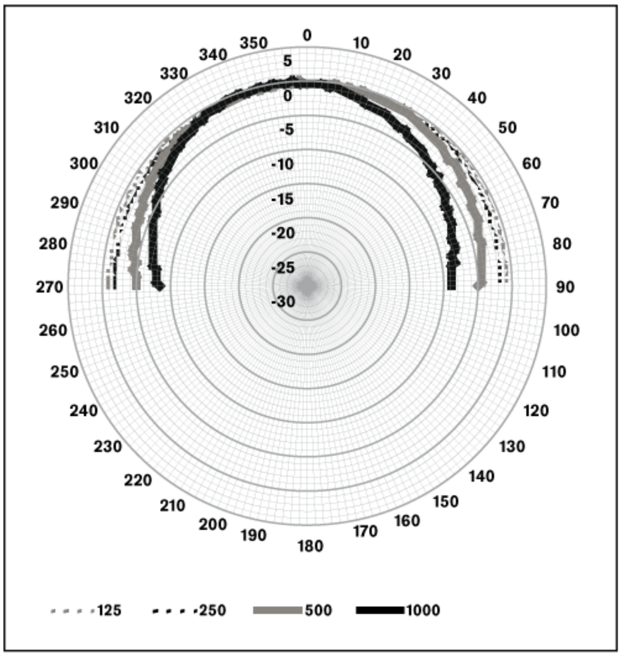
LB1-UM20E-D/L



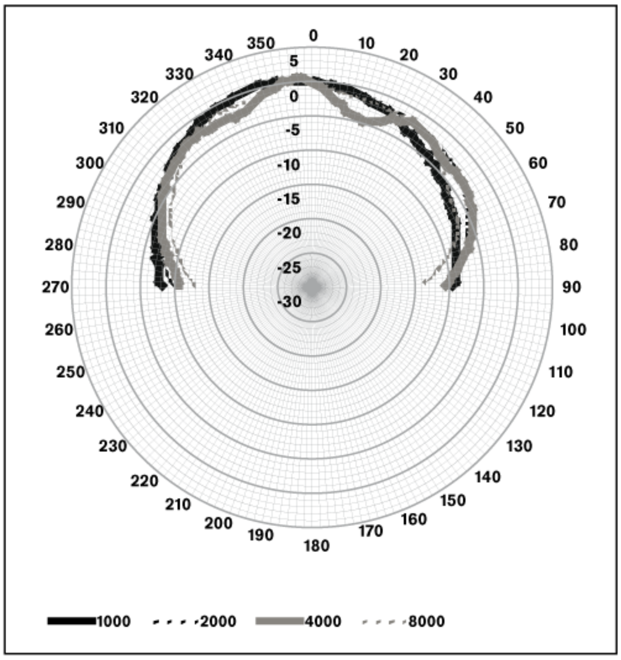
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	82.5	-	-
250 Hz	82.5	-	-
500 Hz	85.4	-	-
1000 Hz	88.2	-	-
2000 Hz	88.0		
4000 Hz	85.5	-	-
8000 Hz	86.3	-	-
A-weighted	-	84.1	96.4
Lin-weighted	-	85.0	97.4

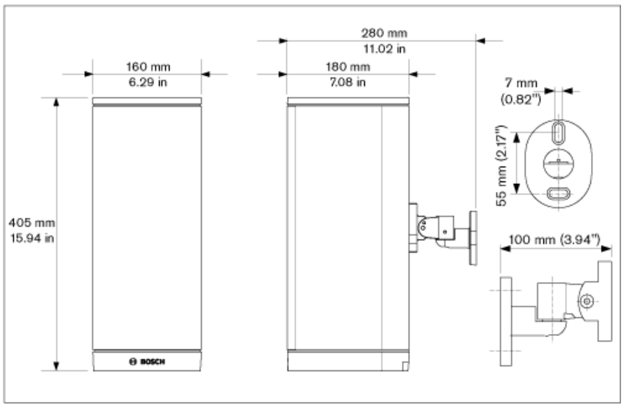
Octave band opening angles

	Horizontal	Vertical
125 Hz	360	360
250 Hz	360	360
500 Hz	206	360
1000 Hz	174	127
2000 Hz	128	141
4000 Hz	136	141
8000 Hz	132	117

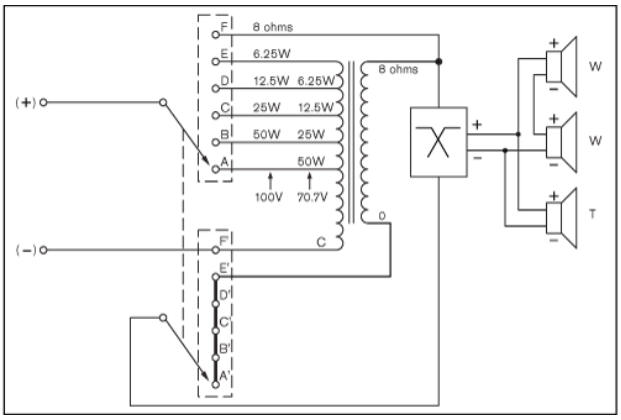
Acoustical performance specified per octave

* (all measurements are done with a pink noise signal; the values are in dBSPL)

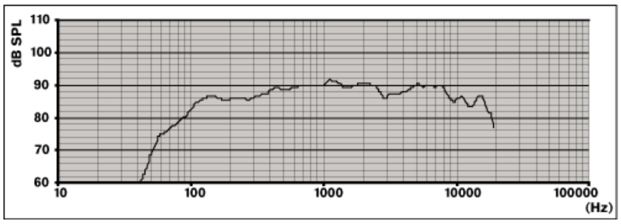
LB1-UM50E-D/L


280 mm
11.02 in
160 mm
6.29 in
180 mm
7.08 in
7 mm
(0.82")
55 mm (2.17")
405 mm
15.94 in
100 mm (3.94")
BOSCH

Dimensions

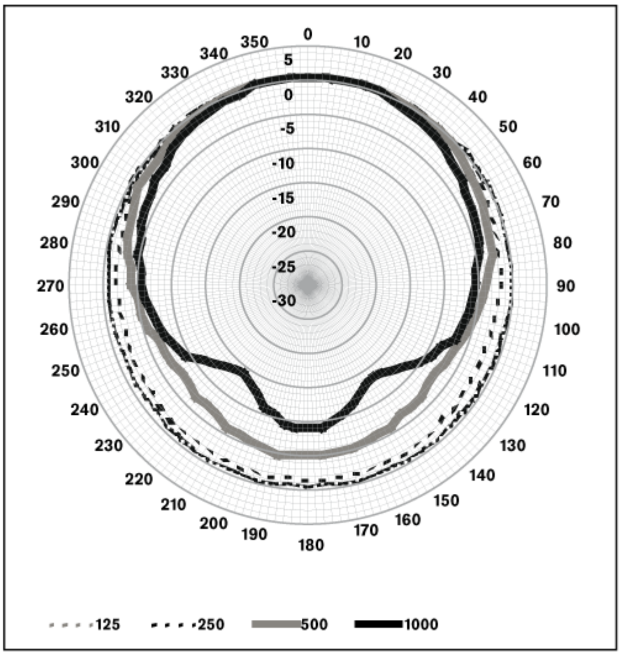

(+)
(–)
F
E
D
C
B
A
8 ohms
6.25W
12.5W
6.25W
25W
12.5W
50W
25W
50W
100V
70.7V
8 ohms
0
C
W
W
T

Circuit diagram

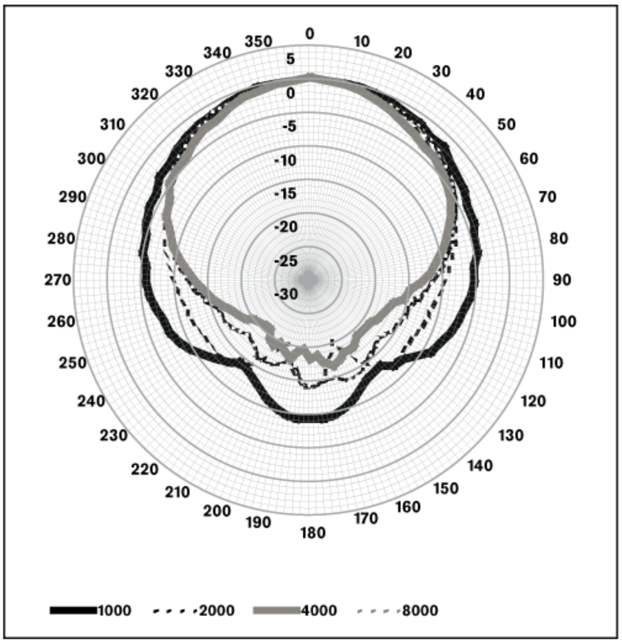


Frequency response

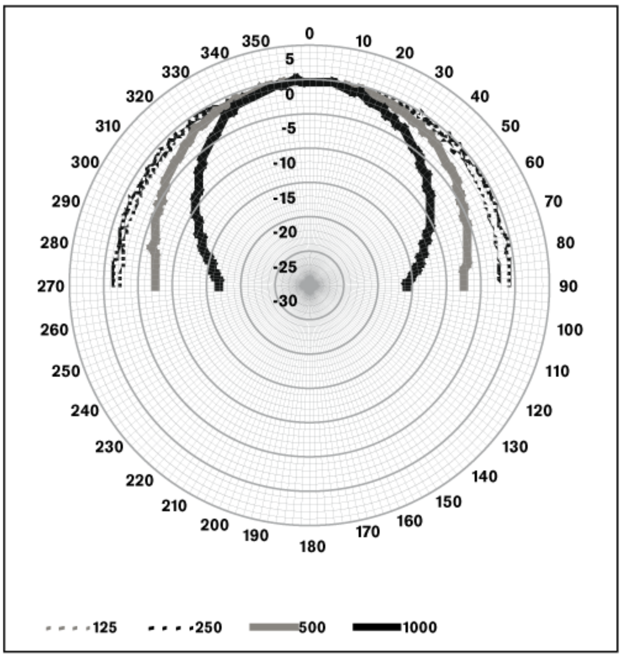
LB1-UM50E-D/L



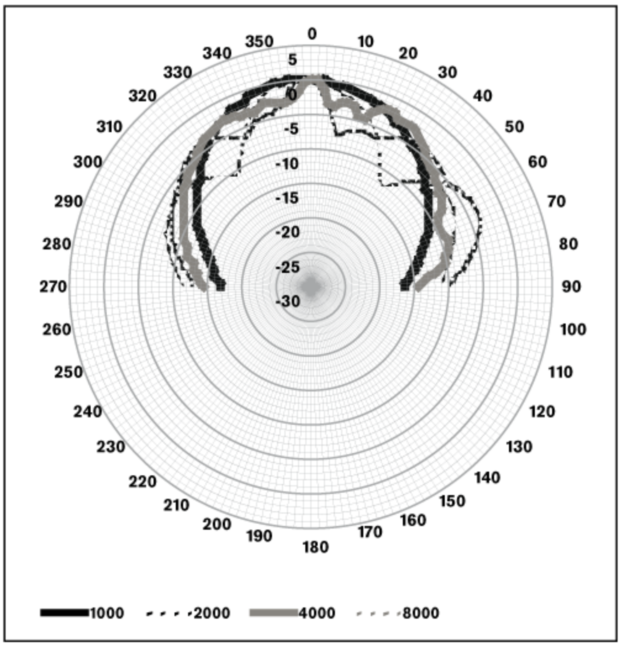
Polar diagram horizontal



Polar diagram horizontal



Polar diagram vertical



Polar diagram vertical

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.3	-	-
250 Hz	86.1	-	-
500 Hz	89.0	-	-
1000 Hz	90.7	-	-
2000 Hz	90.1		
4000 Hz	88.5	-	-
8000 Hz	89.0	-	-

A-weighted	-	86.7	102.9
Lin-weighted	-	87.6	102.9

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	> 180	
250 Hz	360	> 180	
500 Hz	209	142	
1000 Hz	186	84	
2000 Hz	126	47	
4000 Hz	126	62	
8000 Hz	119	95	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-UMx0E-x
1	Mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Product	LB1-UM20E-(D/L)	LB1-UM50E-(D/L)
Description	Premium-sound Cabinet Loudspeaker	Premium-sound Cabinet Loudspeaker
Maximum power	30 W	75 W
Rated power (PHC)	20 W	50 W
Power tapping	20 / 10 / 5 / 2.5 W	50 / 25 / 12.5 / 6.25 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	101 dB / 88 dB (SPL)	108 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	90 Hz to 20 kHz	90 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)		
horizontal	174° / 136°	186° / 126°
vertical	127° / 141°	84° / 62°
Rated input voltage	12.65 / 70 / 100 V	20 / 70 / 100 V
Rated impedance	8 / 250 / 500 ohm	8 / 100 / 200 ohm
Connector	3-pole screw block	3-pole screw block

* Technical performance data acc. to IEC 60268-5

Mechanical

Product	LB1-UM20-(D/L)	LB1-UM50-(D/L)
Dimensions (W x D)	274x160x180mm 10.78x6.29x7.08in	405x160x180mm 15.94x6.29x7.08in
Loudspeaker diameter		
Woofer	134.5 mm (5 in)	134.5 mm (5 in)
Dome tweeter	25.4 mm (1 in)	25.4 mm (1 in)
Material		
Cabinet	Aluminum	Aluminum
Front grille	Aluminum	Aluminum
Top and bottom	ABS	ABS
Color	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)	White (RAL 9010) (L) or Charcoal (RAL 7021) (D)
Weight	3.88 kg (8.55 lb)	5.58 kg (12.30 lb)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE
1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0253

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Premium-sound Cabinet
LB1-UM20E-(D/L), LB1-UM50E-(D/L)
Type B

Ordering information

LB1-UM20E-D Premium-sound Cabinet Loudspeaker 20 W Charcoal
Cabinet loudspeaker 20 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, charcoal RAL 7021.
Order number **LB1-UM20E-D**

LB1-UM20E-L Premium-sound Cabinet Loudspeaker 20 W White
Cabinet loudspeaker 20 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, white RAL 9010.
Order number **LB1-UM20E-L**

LB1-UM50E-D Premium-sound Cabinet Loudspeaker 50 W Charcoal
Cabinet loudspeaker 50 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, charcoal RAL 7021.
Order number **LB1-UM50E-D**

LB1-UM50E-L Premium-sound Cabinet Loudspeaker 50 W White
Cabinet loudspeaker 50 W, aluminum extruded enclosure, two-way system, including wall bracket, EN54-24 certified, white RAL 9010.
Order number **LB1-UM50E-L**

Accessories

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

LB1-SW60 Subwoofer Cabinet 60W

Features

- Compact size
- Built-in Low-pass filter
- Wall mounting bracket included
- Versatile mounting applications
- Selectable 70 V, 100 V and 4 Ohm input

The LB1-SW60 is the ideal solution for adding low frequency enhancement in general public address applications.
It is a 60 W subwoofer cabinet, which reproduces the low frequency part of a full-range input signal content. The built-in low-pass filter eliminates the need for an external crossover. It features a tuned, ported enclosure and an 8” woofer resulting in a tight, warm bass response. The subwoofer is designed to be used in combination with smaller loudspeakers so-called satellite loudspeakers. These smaller loudspeakers reproduce full frequency range, but lack bass response because of their small size. One or more subwoofers connected in combination with Bosch Ceiling-, Cabinet-, Column Loudspeakers and Sound projectors is possible.
The built-in matching transformer allows easy integration in existing and new constant voltage installations.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

CE	Declaration of conformity
Safety	According to EN 60065

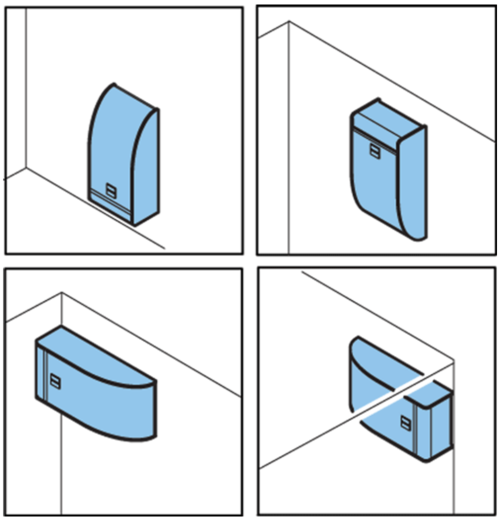
Region	**Certification**
Europe	CE

Installation/configuration notes

The LB1-SW60 can be placed on the floor or mounted onto the wall. For invisible wall mounting, a wall bracket is standard supplied.
The rear of the cabinet has screw inserts for mounting the wall bracket for either horizontal or vertical wall mounting. A drilling template is supplied standard.
The Bosch logo plate can be easily adjusted to match the mounting orientation.

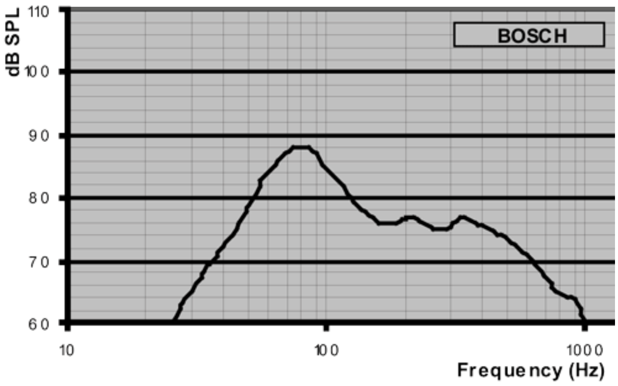
Connections are made using a 4-way push terminal block at the rear of the cabinet, where each incoming and outgoing conductor of the same potential can be connected to a separate terminal.

Close to the terminal is a provision for mounting an optional ceramic terminal block with thermal fuse.
Power tapping on both 70 V and 100 V allows selection of full-power, half-power, quarter power, eight-power radiation, and 4 Ohm.
A selector at the front of the cabinet simplifies the required selection of power setting. This selector can be reached after removing the Bosch logo plate.
The metal front grille can be removed from the cabinet for ease of painting, if required.

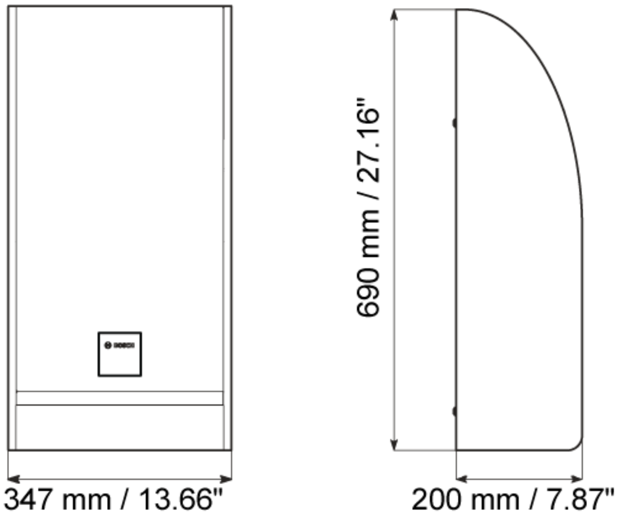


LB1-SW60 Versatile mounting applications

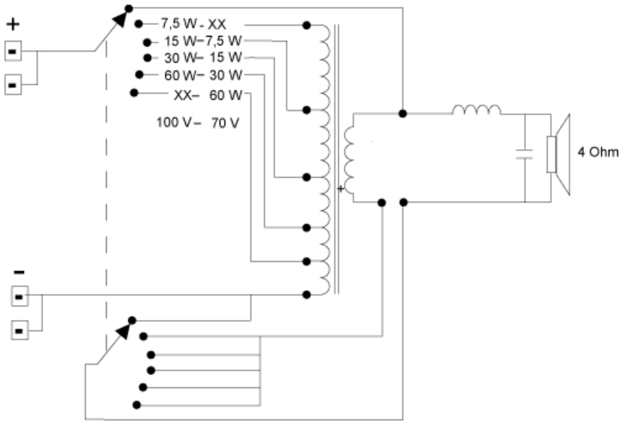
LB1-SW60 rear view, showing mounting bracket screw inserts and connection terminal



LB1-SW60 Frequency response



LB1-SW60 Dimensions



LB1-SW60 Circuit diagram

Octave band sensitivity *

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	80.0	-	-
250 Hz	75.6	-	-
500 Hz	73.0	-	-
1000 Hz	62.2	-	-
2000 Hz	44.0		
4000 Hz	33.5	-	-
8000 Hz	29.3	-	-
A-weighted	-	63.2	80.1
Lin-weighted	-	76.8	93.5

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LB1-SW60
1	Drilling template for wall mounting
1	Installation instruction

Technical specifications

Electrical*

Description	LB1-SW60 Subwoofer cabinet
Maximum power	90 W
Rated power (PHC)	60 W

Power tapping	60/30/15/7.5 W
Sound pressure level at rated power / 1 W (70 Hz, 1 m)	106 / 88 dB
Effective frequency range (-10 dB)	45 Hz to 150 Hz
Rated input voltage	15.5/70/100 V
Rated impedance	4/83.5/167 Ohm
Connector	4-way push terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	690 x 347 x 200 mm (27.16 x 13.66 x 7.87 in)
Weight	12.4 kg (27.34 lb)
Color	White (RAL 9010)
Material	
- Loudspeaker cabinet	MDF
- Front grille	Steel

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LB1-SW60 Subwoofer Cabinet 60W
Subwoofer cabinet 60 W, MDF enclosure with metal front grille, white RAL 9010, built-in low-pass filter, selectable 70 V, 100 V, and 4 ohm input, wall-mounting bracket included.
Order number **LB1-SW60**

LB3-PCx50 Premium Cabinet Loudspeakers

BOSCH
BOSCH

Features

- High-quality music and speech reproduction
- Weatherized, suited for sheltered outside use
- Prepared for Bosch WLS, EOL and DMY pcb’s
- Attachment points for (suspended) mounting, pole mount
- BS 5839-8 compliant

The Bosch premium loudspeakers are full range passive loudspeakers for a wide range of applications where high output, wide controlled dispersion and wide frequency are required, as well as the flexibility of mounting inside and sheltered outside.
The Bosch line of large premium loudspeakers consists of two sizes; 12” and 15” models. All models feature a two-way loudspeaker in a molded ABS VO enclosure. The loudspeakers have a 1” compression driver coupled to an impedance transformer with constant directivity characteristics and a direct radiating 12” or 15” loudspeaker.
Typical uses include fixed installations in auditoriums, conference venues, community centers, theaters, areas of assembly, factories multipurpose halls and sports facilities.
A self-restoring protection device protects the high-frequency driver against incidental overload. The transformer accepts signals between 40 Hz and 22 kHz at 100 V or 70 V.

System overview

The LB3-PC250 features a 12”woofer and 1”exit compression driver. The LB3-PC350 features a 15”woofer and 1” exit compression driver.
The premium loudspeaker is fitted with a specially designed horn that provides constant coverage independent of frequency. The handle locations and position of rig-points are placed to make the loudspeaker easy to carry and align when installing. There is an integrated pole mount on the bottom of the cabinet and a weather-resistant steel grille. All screws and bolts are stainless steel or treated to resist rust. The cabinet has been designed to provide the possibility of mounting the loudspeaker close to a side wall or on the floor. The enclosure features high dampening, is impact resistant and weather proof (sheltered).
The LB3-PC250 and LB3-PC350 are suited for locations where high sound pressure, wide-band audio is needed and where there is no mains power or where active loudspeakers are not desired, like outside applications or applications where the benefits of the 100 V technique comes into play like easy connection of multiple speakers and long cable runs.
The LB3-PC250 and LB3-PC350 have a 100/70 V transformer with power tapping. The speakers are weatherproof (IP44, able to be mounted sheltered outside).

Functions

The loudspeaker has two SPEAKON connectors wired in parallel. The input from the SPEAKON is available under a waterproof cover at the rear side of the loudspeaker. To protect against moisture, dirt and tampering a splash proof cover is fitted over the control part of the rear panel. Below the cover you can find the input from the SPEAKON, you can choose to wire either channel 1 or channel 2 to the ceramic terminal block. Alternatively it is possible to wire E30 wire directly through PG11 waterproof feed through to the ceramic block (with thermal fuse). The loudspeaker has two PG11 locations to enable loop-through of direct wires. From the ceramic block it is possible to select the speaker tapping. Full, half and quarter power is available at 100 V and 70 V.
The cover has a dedicated location for the EOL (End Of Line) LED, if the Bosch EOL pcb is used, the Bosch proprietary line supervision set for individual loudspeaker monitoring or line monitoring can also be used at this location. Internally the loudspeaker has a dedicated notch filter to filter out a 20 kHz pilot-tone. This will reduce the 20 kHz pilot-tone. The filter is bypassed by a bridge as standard delivery.
Safety features include a thermal fuse in the transformer, thermal fuse at the ceramic input block in accordance with evacuation standards and an auto resetting current limiting circuit between the HF filter output and the HF driver.
The coverage of the speaker is 90° x 60° (H x V).
Wires are connected from the drivers to the metal rear panel, where a hoist/tether point for safety wire is located.

Certifications and approvals

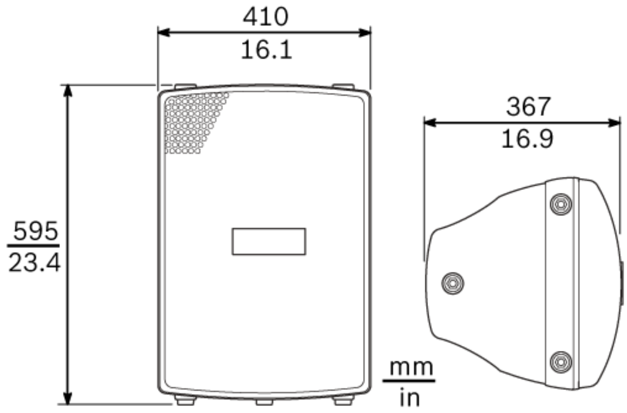
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	According to EN 60065
Emergency	According to BS 5839-8
	According to EN 60849

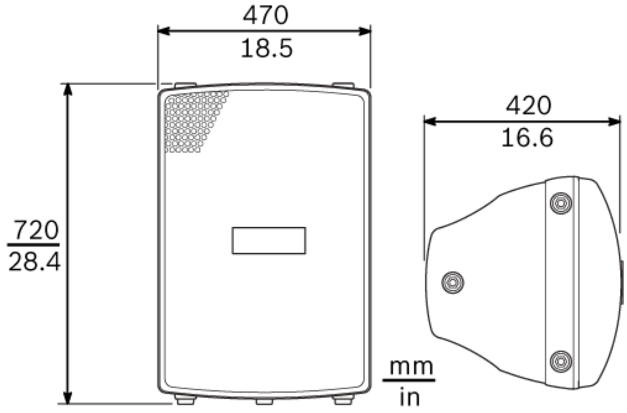
Water and dust protection	According to EN 60529 IP44
Self-extinguishing ABS	According to UL 94 V 0

Region	**Certification**
Europe	CPD
Poland	CNBOP

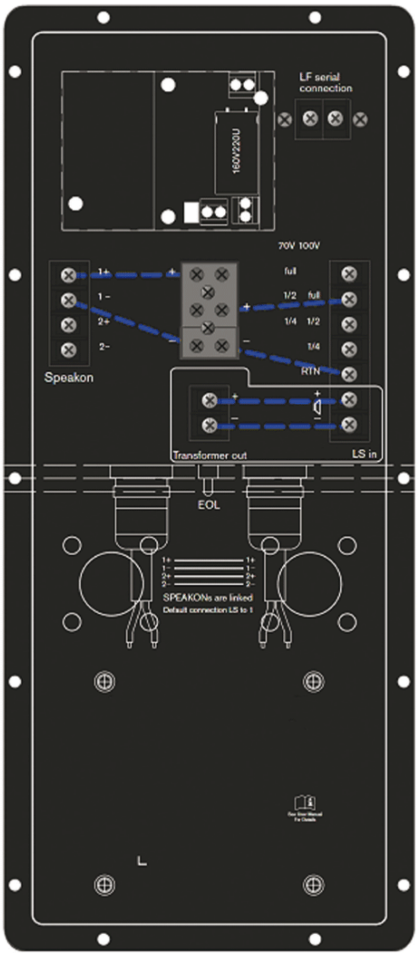
Installation/configuration notes


410
16.1
367
16.9
595
23.4
mm
in

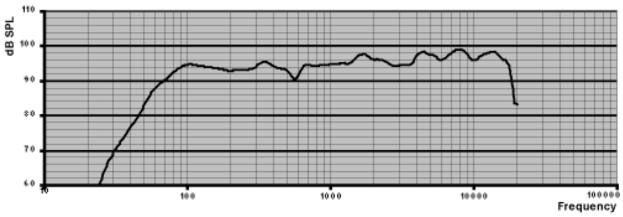
Dimensions LB3-PC250


470
18.5
420
16.6
720
28.4
mm
in

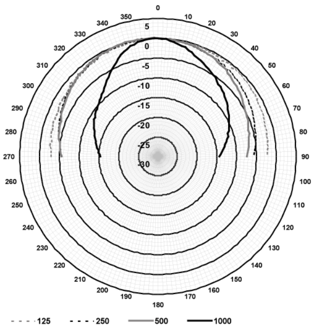
Dimensions LB3-PC350

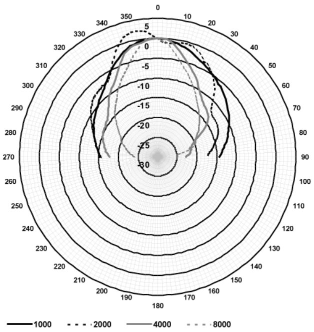

LF serial connection
160V220U
70V 100V
full
1/2 full
1/4 1/2
1/4
RTN
1+
1–
2+
2–
Speakon
Transformer out
LS in
EOL
SPEAKONs are linked
Default connection LS to 1

Connection panel on the rear side

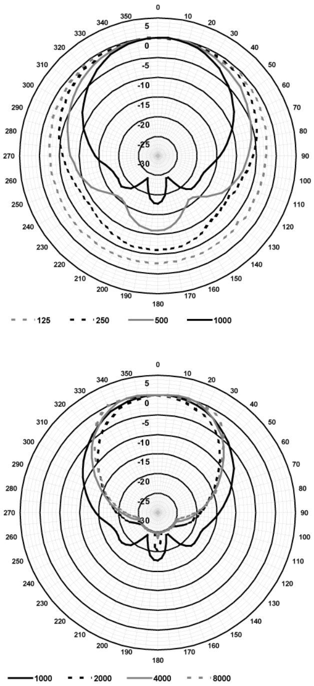


Frequency response LB3-PC250





Vertical polar diagrams of LB3-PC250 (pink noise octave, normalized at 0º axis)



Horizontal polar diagrams of LB3-PC250 (pink noise octave, normalized at 0º axis)

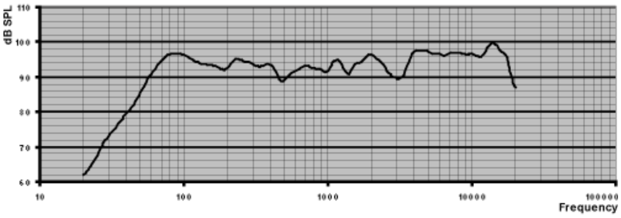
Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	92.8	-	-
250 Hz	93.3	-	-
500 Hz	93.6	-	-
1000 Hz	94.7	-	-
2000 Hz	97	-	-
4000 Hz	96.8	-	-
8000 Hz	98	-	-
A-weighted	-	93.7	-
Lin-weighted	-	95.1	-

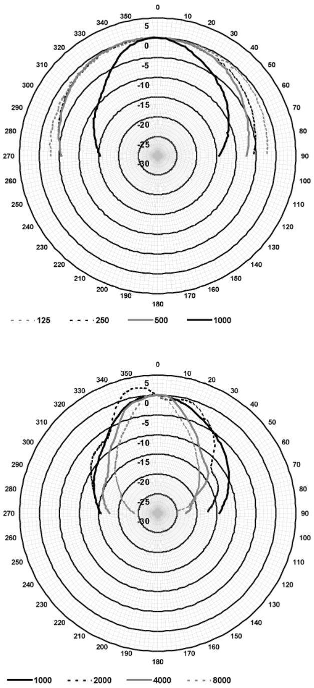
Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	183	180	
500 Hz	152	162	
1000 Hz	100	70	
2000 Hz	77	66	
4000 Hz	87	44	
8000 Hz	86	32	

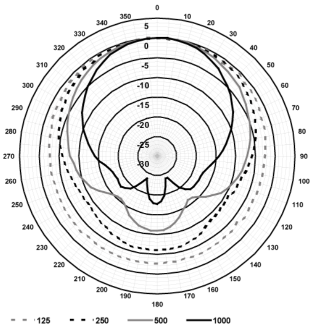
LB3-PC250. Acoustical performance specified per octave. *all measurements are done with a pink noise signal; the values are in dBSPL

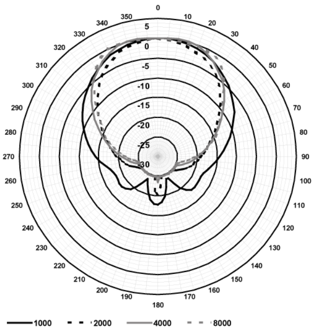


Frequency response LB3-PC350



Vertical polar diagrams of LB3-PC350 (pink noise octave, normalized at 0º axis)





Horizontal polar diagrams of LB3-PC350 (pink noise octave, normalized at 0º axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	93.3	-	-
250 Hz	93.8	-	-
500 Hz	93.0	-	-
1000 Hz	93.6	-	-
2000 Hz	95.2	-	-
4000 Hz	96.6	-	-
8000 Hz	98.4	-	-
A-weighted	-	93.3	-
Lin-weighted	-	95.3	-

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	183	180	
500 Hz	152	162	
1000 Hz	100	70	
2000 Hz	77	66	
4000 Hz	87	44	
8000 Hz	86	32	

LB3-PC350. Acoustical performance specified per octave. *all measurements are done with a pink noise signal; the values are in dBSPL

Parts included

Quantity	Components
1	LB3-PCx50
1	Installation instruction

Technical specifications

Electrical*

Product	LB3-PC250	LB3-PC350
Description	Premium 250 W Cabinet Loudspeaker	Premium 350 W Cabinet Loudspeaker
Maximum power	500 W	700 W
Rated power (PHC)	250 W	350 W
Power tapping	250 / 125 / 62.5 W	350 / 175 / 87.5 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	117 dB / 94 dB (SPL)	122 dB / 97 dB (SPL)
Effective frequency range (-10 dB)	55 Hz to 18 kHz	48 Hz to 18 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)		
horizontal	100 °/ 87 °	100 °/ 87 °
vertical	70 °/ 44 °	70 °/ 44 °
Rated input voltage	70 / 100 V	70 / 100 V
Rated impedance	20 / 40 ohm	14 / 29 ohm

* Technical performance data acc. to IEC 60268-5

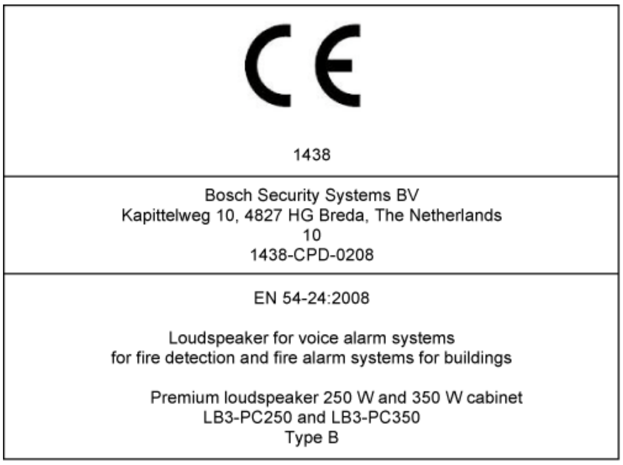
Mechanical

Product	LB3-PC250	LB3-PC350
Dimensions (WxDxH)	410x367x595 mm (16.1x16.9x23.4 in)	470x420x720 mm (18.5 x16.6x28.4 in)
Connectors	SPEAKON	SPEAKON
	3-pole ceramic screw block	3-pole ceramic screw block
Loudspeaker diameter		
Woofer	305 mm (12 in)	381 mm (15 in)
Driver	25.4 mm (1 in)	25.4 mm (1 in)
Material		
Cabinet	ABS VO	ABS VO
Front grille	Powder coated steel	Powder coated steel
Color	Charcoal (RAL 7021) (D)	Charcoal (RAL 7021) (D)
Weight	19 kg (42 lb)	34 kg (74 lb)

Environmental

Operating temperature	-10 ºC to +40 ºC (-14 ºF to +104 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4788/BA/10.



1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0208

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Premium loudspeaker 250 W and 350 W cabinet
LB3-PC250 and LB3-PC350
Type B

Ordering information

LB3-PC250 Premium 250W Cabinet Loudspeaker
Premium cabinet loudspeaker, 12 inch, 250 W.
Order number **LB3-PC250**

LB3-PC350 Premium 350W Cabinet Loudspeaker
Premium cabinet loudspeaker, 15 inch, 350 W.
Order number **LB3-PC350**

Accessories

LM1-MBX12 Mounting Bracket
For LB3-PC250
Order number **LM1-MBX12**

LM1-MBX15 Mounting bracket
For LB3-PC350
Order number **LM1-MBX15**

LA1-UW24-x Column Loudspeakers

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- High sensitivity
- Swivel wall-mounting bracket supplied as standard
- Available in black or white

The LA1-UW24-x is a 24 W, general-purpose, cost-effective column loudspeaker for indoor use where beaming is desirable, such as places of worship, conference venues, meeting rooms, and canteens. A swivel wall-mounting bracket is supplied as standard. The column loudspeaker is available in black and white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of black or white. The ABS fronts are covered with fine woven cloth in matching color.
These powerful column loudspeakers are fitted with four dual-cone, high-sensitivity, loudspeaker drivers.

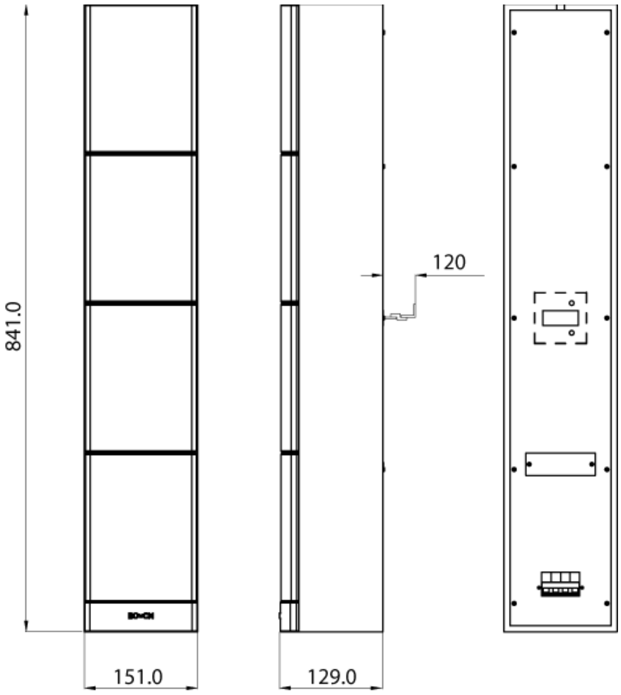
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

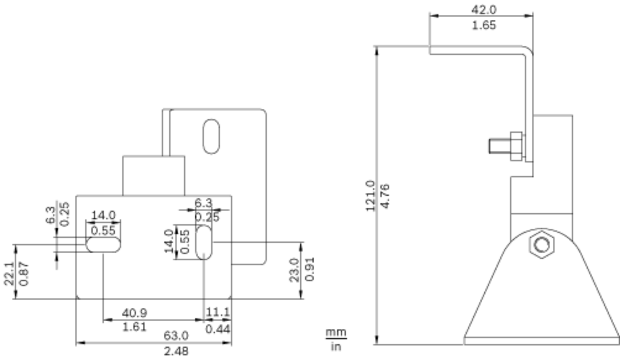
Safety	acc. to EN 60065

Installation/configuration notes

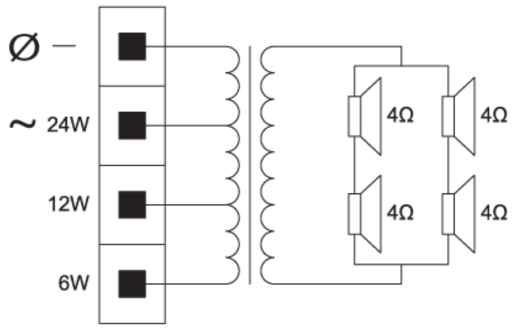
The column loudspeakers can be wall mounted using the supplied swivel bracket, allowing accurate positioning. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



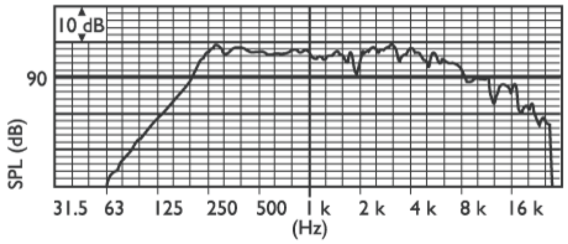
Dimensions in mm



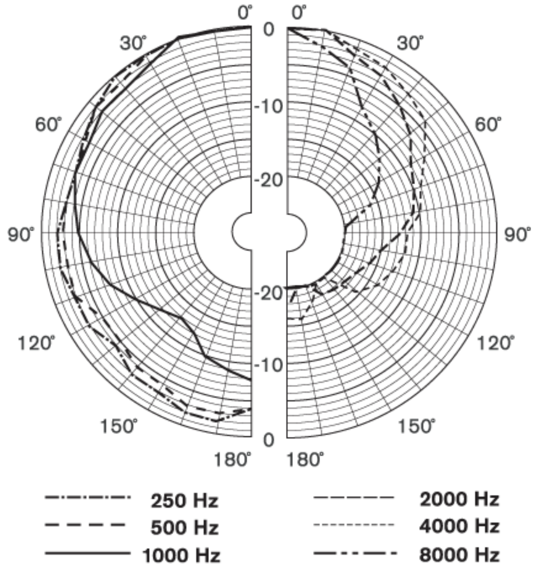
Bracket dimensions



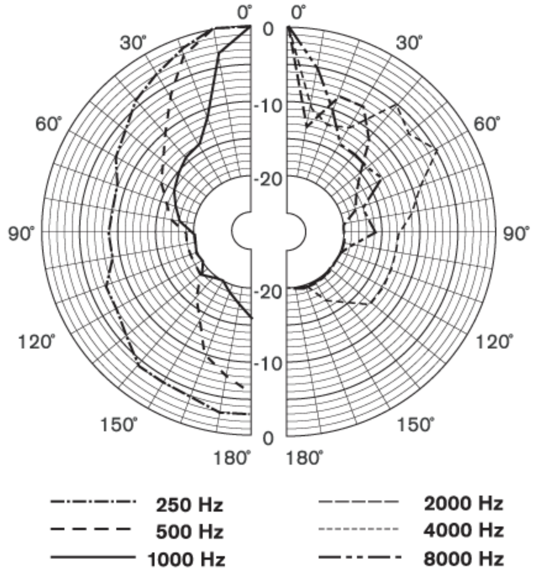
Circuit diagram



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Parts included

Quantity	Component
1	LA1-UW24-x Column Loudspeaker
1	Swivel wall mounting bracket

Technical specifications

Electrical*

Maximum power	36 W
Rated power	24 / 12 / 6 W
Sound pressure level at 24 W / 1 W (1 kHz, 1 m)	110 dB / 96 dB (SPL)
Effective frequency range (-10 dB)	165 Hz to 16 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	190° / 88°
vertical	30° / 8°
Rated input voltage	100 V
Rated impedance	417 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	841x 151 x 129 mm (33.1 x 5.9 x 5.1 in)
Weight	5.5 kg (12.1 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LA1-UW24-D Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall-mounting bracket.
Order number **LA1-UW24-D**

LA1-UW24-L Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.
Order number **LA1-UW24-L**

LA1-UW36-x Column Loudspeakers

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- High sensitivity
- Swivel wall mounting bracket supplied as standard
- Available in black or white

The LA1-UW36-x is a 36 W, general-purpose, cost-effective column loudspeaker for indoor use where beaming is desirable, such as places of worship, congress venues, meeting rooms and canteens. A swivel wall mounting bracket is supplied as standard. The column loudspeaker is available in black and white.

Functions

The robust, solid MDF (Medium Density Fiber board) enclosures are covered with a durable, easy-to-clean vinyl in a choice of black or white. The ABS fronts are covered with fine woven cloth in matching color.

These powerful column loudspeakers are fitted with four dual cone high sensitivity loudspeaker drivers.

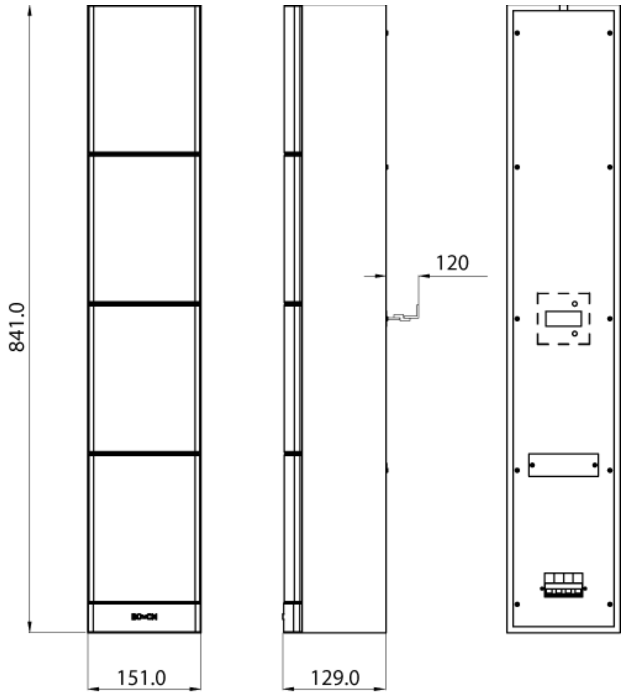
Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

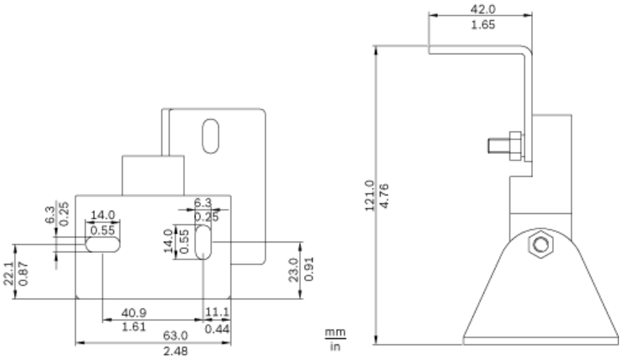
Safety	acc. to EN 60065

Installation/configuration notes

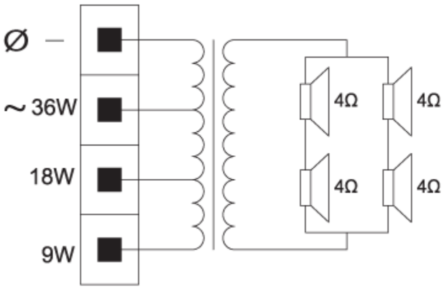
The column loudspeakers can be wall mounted using the supplied swivel bracket, allowing accurate positioning. A convenient, easy-to-use, four-pole push-in terminal block is present on the rear panel for on-site wiring. This terminal block has provision for power tapping on the 100 V, matching transformer in the cabinet. It allows selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



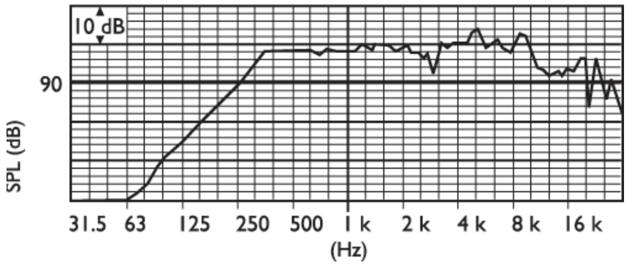
Dimensions in mm



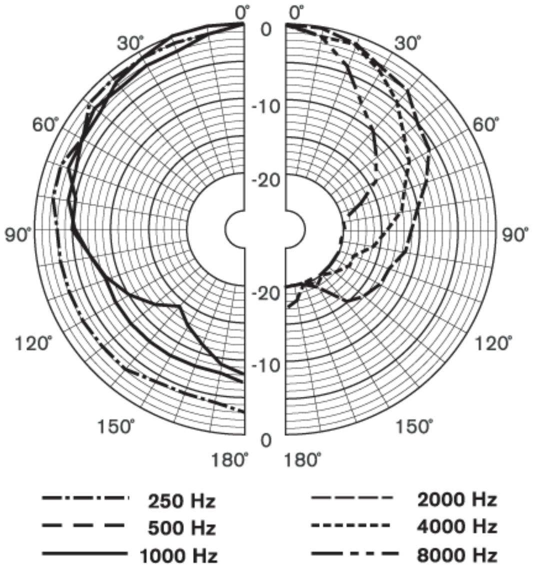
Bracket dimensions



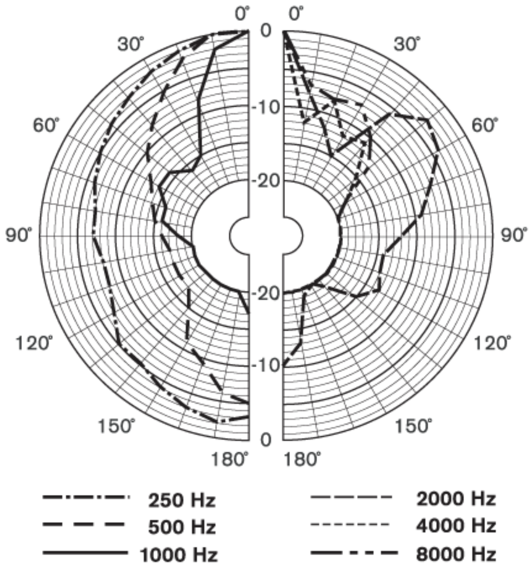
Circuit diagram



Frequency response



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Parts included

Quantity	Component
1	LA1-UW36-x Column Loudspeaker
1	Swivel wall mounting bracket

Technical specifications

Electrical*

Maximum power	54 W
Rated power	36 / 18 / 9 W
Sound pressure level at 36 W / 1 W (1 kHz, 1 m)	114 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	160 Hz to 19 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	190° / 88°
vertical	30° / 8°
Rated input voltage	100 V
Rated impedance	278 ohm
Connector	4-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	841x 151 x 129 mm (33.1 x 5.9 x 5.1 in)
Weight	6 kg (13.2 lb)
Color	Black (D) or white (L)
cabinet / cloth (D)	Matches RAL 9004 / RAL 9004
cabinet / cloth (L)	Matches RAL 9010 / RAL 7044

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LA1-UW36-D Column Loudspeaker
Column loudspeaker 36 W, MDF enclosure with fine-woven cloth fronts, finished in black, supplied with a swivel wall mounting bracket.
Order number **LA1-UW36-D**

LA1-UW36-L Column Loudspeaker
Column loudspeaker 24 W, MDF enclosure with fine-woven cloth fronts, finished in white, supplied with a swivel wall mounting bracket.
Order number **LA1-UW36-L**

LA1-UMx0E-1 Metal Column Loudspeakers

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- Slim-line weatherproof design
- Swivel wall mounting bracket supplied as standard
- Robust aluminum construction

The LA1-UM20E-1 and LA1-UM40E-1 metal column loudspeakers deliver professional performance from a robust, yet aesthetically designed aluminum enclosure in a white finish.
It is an ideal loudspeaker column where sound beaming is required, for both indoor and outdoor use in passenger terminals, places of worship, conference venues, theme parks, swimming pools, factories, exhibition areas.
A swivel wall mounting bracket is supplied as standard, allowing accurate positioning.

Functions

Voice alarm
Voice alarm loudspeakers are specifically designed for use in applications, where the performance of PA systems is subject to official regulations. The LA1-UM20E-1 and LA1-UM40E-1 are designed for voice alarm systems.

Protection
Both loudspeaker columns have built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety
The loudspeaker columns have a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The column has a provision for internally mounting the optional line/loudspeaker supervision board.

Loudspeaker output power setting
Four primary taps are provided on the built-in matching transformer. Loudspeaker output power setting is done on the build-in transformer and connected to a rotary vary-tap switch located in the back of the enclosure to allow simple output power setting. An 8 ohms setting is also provided on the rotary vary-tap switch.

Certifications and approvals

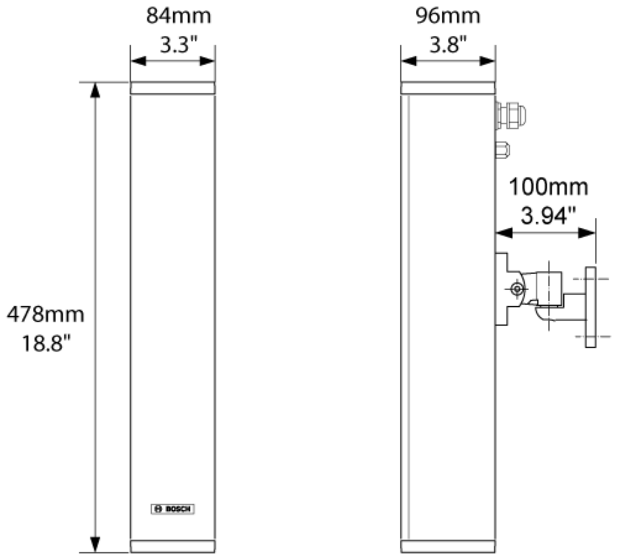
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24
	acc. to EN 60849
	acc. to BS 5839-8
Water and dust protection	acc. to EN 60529 IP 65
Wind-force	Acc. to NEN 6702:2007 + A1: 2008, Bft11

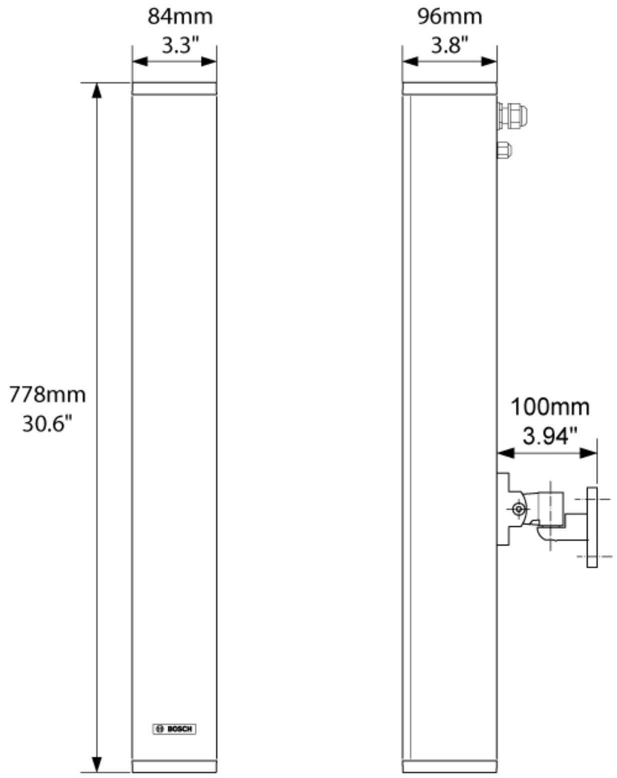
Region	Certification
Europe	CPD
Poland	CNBOP

Installation/configuration notes

The column loudspeakers can be wall mounted using the swivel wall bracket standard supplied, or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories. The bracket is attached on a slider, which can be placed and secured in any desired position along the rear of the enclosure.
Standard supplied with 1 m connection cable, but these can be replaced during installation with any other type of connection cable.
The connection cable is fed out through a cable gland (PG 20) in the top rear of the enclosure. For loop through connection, a second hole (covered as standard supplied) is provided.

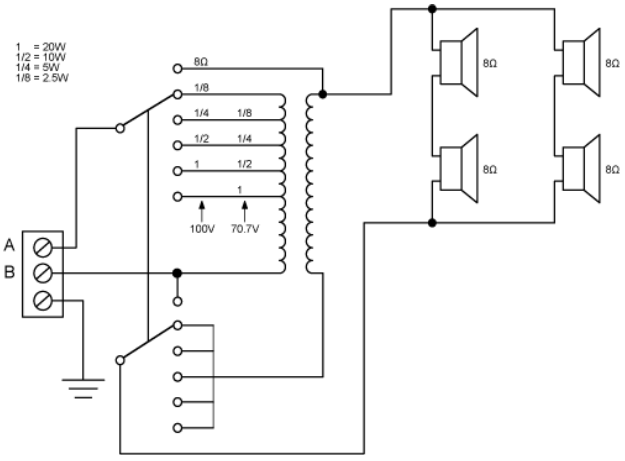

84mm
3.3"
96mm
3.8"
100mm
3.94"
478mm
18.8"
BOSCH

LA1-UM20E-1 Dimensions mm (in)

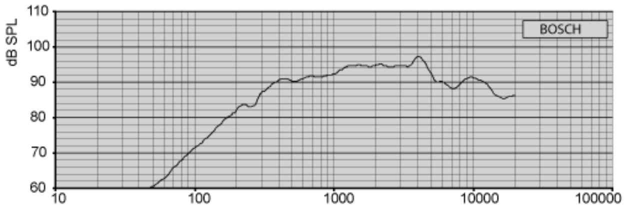

84mm
3.3"
96mm
3.8"
100mm
3.94"
778mm
30.6"
BOSCH

LA1-UM40E-1 Dimensions mm (in)

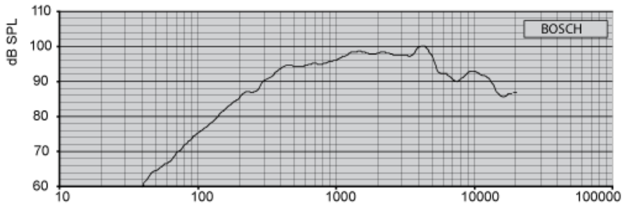
LA1-UM20E-1 / LA1-UM40E-1 Rear view


1 = 20W
1/2 = 10W
1/4 = 5W
1/8 = 2.5W
8Ω
1/8
1/4
1/8
1/2
1/4
1
1/2
1
100V
70.7V
A
B
8Ω
8Ω
8Ω
8Ω

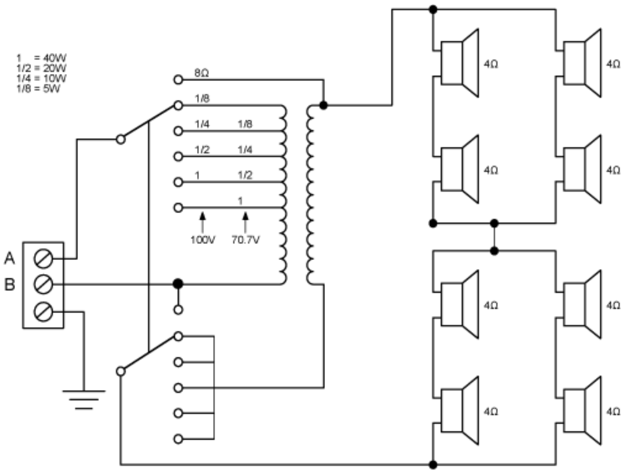
LA1-UM20E-1 Circuit diagram (A: Phase, B: Common)



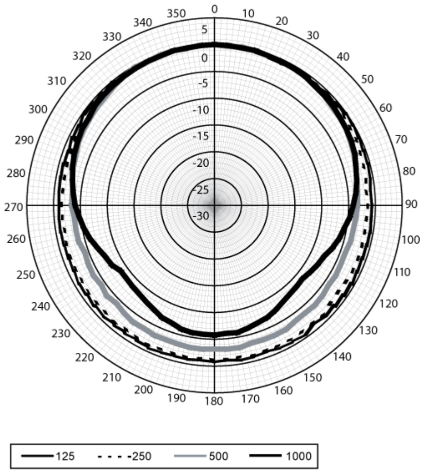
LA1-UM20E-1 Frequency response

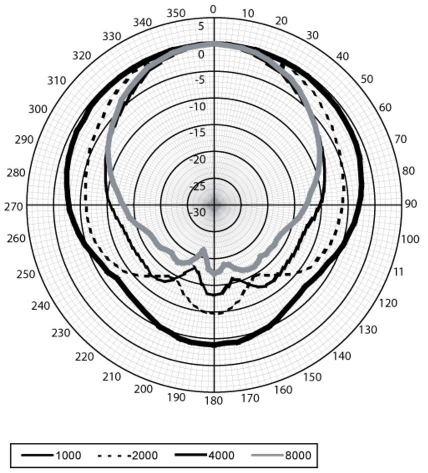


LA1-UM40E-1 Frequency response

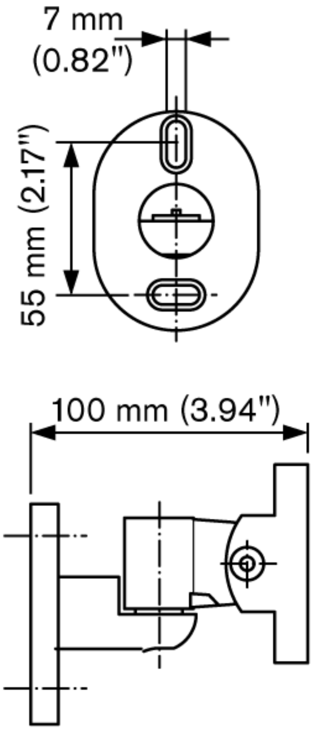

1 = 40W
1/2 = 20W
1/4 = 10W
1/8 = 5W
8Ω
1/8
1/4
1/8
1/2
1/4
1
1/2
1
100V
70.7V
A
B
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω

LA1-UM40E-1 Circuit diagram (A: Phase, B: Common)

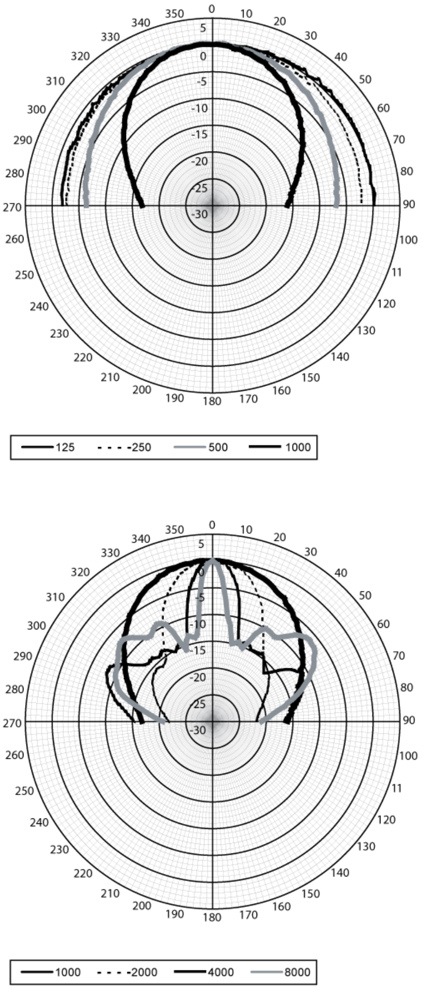




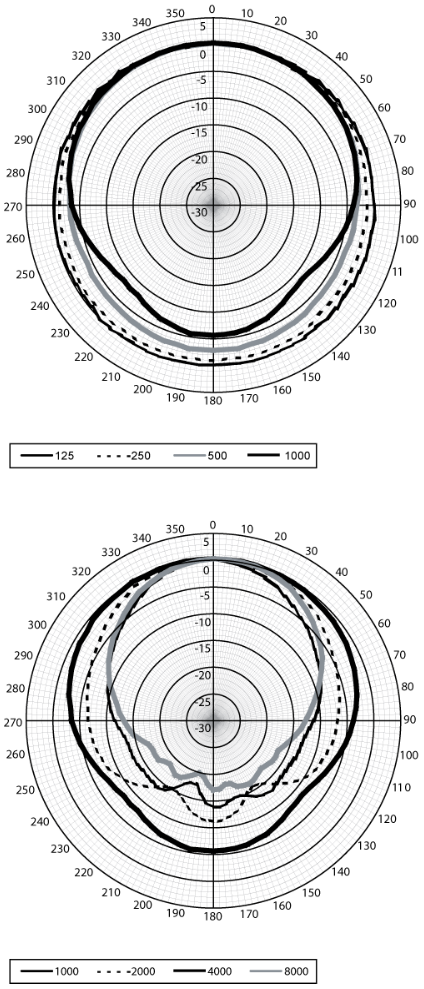
LA1-UM20E-1 Polar-diagram (horizontal)


7 mm
(0.82")
55 mm (2.17")
100 mm (3.94")

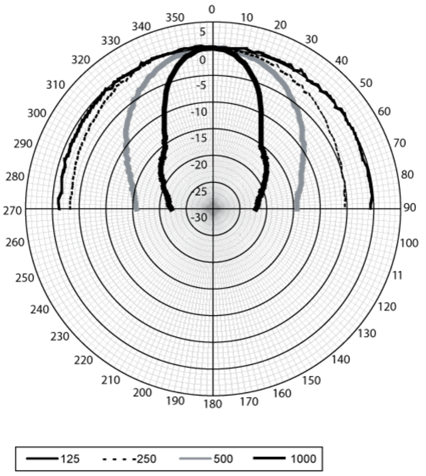
Details mounting bracket

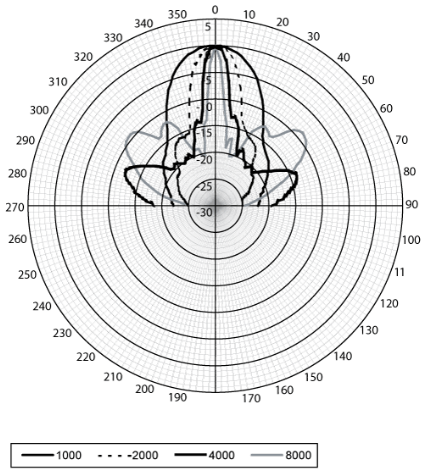


LA1-UM20E-1 Polar diagram (vertical)



LA1-UM40E-1 Polar diagram (horizontal)





LA1-UM40E-1 Polar diagram (vertical)

Octave band sensitivity LA1-UM20E-1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	75.9	-	-
250 Hz	82.9	-	-
500 Hz	88.7	-	-
1000 Hz	91.5	-	-
2000 Hz	93.9	-	-
4000 Hz	94.5	-	-
8000 Hz	89.6	-	-
A-weighted	-	89.7	101.5
Lin-weighted	-	89.6	101.6

Octave band opening angles LA1-UM20E-1

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	160	
1000 Hz	210	80	
2000 Hz	148	43	
4000 Hz	94	22	
8000 Hz	95	10	

Octave band sensitivity LA1-UM40E-1

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	78.5	-	-
250 Hz	86.7	-	-
500 Hz	92.2	-	-
1000 Hz	95.2	-	-
2000 Hz	97.4	-	-
4000 Hz	97.8	-	-
8000 Hz	90.7	-	-
A-weighted	-	93.0	107.6
Lin-weighted	-	92.3	107.5

Octave band opening angles LA1-UM40E-1

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	82	
1000 Hz	210	40	
2000 Hz	146	22	
4000 Hz	92	12	
8000 Hz	97	6	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

Quantity	Components
1	LA1-UMx0E-1 Metal Column loudspeaker
1	Wall mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Description	LA1-UM20E-1	LA1-UM40E-1
Maximum power	30 W	60 W
Rated power (PHC)	20 W	40 W
Power tapping	20 / 10 / 5 / 2.5 W	40 / 20 / 10 / 5 W

Sound pressure level at rated power / 1 W (1 kHz, 1 m)	105 / 92 dB (SPL)	111 / 95 dB (SPL)
Sound pressure level at rated power / 1 W (4 kHz, 1 m)	108 / 95 dB (SPL)	114 / 98 dB (SPL)
Effective frequency range (-10 dB)	240 Hz to 16 kHz	250 Hz to 16 kHz
Horizontal opening angle at 1 kHz / 4 kHz (-6 dB)	210°/ 94°	210°/ 92°
Vertical opening angle at 1 kHz / 4 kHz (-6 dB)	80°/ 22°	40°/ 12°
Rated input voltage	12.65/70/100 V	17.89/70/100 V
Rated impedance	8/251/500 ohm	8/125/250 ohm

* Technical performance data acc. to IEC 60268-5

Mechanical

	LA1-UM20E-1	LA1-UM40E-1
Dimensions (L x W x D)	478 x 84 x 96 mm (18.8 x3.3 x 3.8 in)	778 x 84 x 96 mm (30.6 x3.3 x 3.8 in)
Weight	2.9 kg (6.4 lb)	4.4 kg (9.7 lb)
Color	White (RAL 9010)	White (RAL 9010)
Material (housing and grille)	Extruded aluminum / steel	Extruded aluminum / steel
Connection	1 m (39.37 in) 3-wire cable	1 m (39.37 in) 3-wire cable
Connector (phase, common, earth)	3-pole screw block	3-pole screw block

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
10
1438-CPD-0203

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Metal Column 20 W and 40 W
LA1-UM20E-1 and LA1-UM40E-1
Type B

Ordering information

LA1-UM20E-1 Metal Column Loudspeaker
Column loudspeaker 20 W, aluminum extruded enclosure, water and dust protected IP65, white RAL 9010.
Order number **LA1-UM20E-1**

LA1-UM40E-1 Metal Column Loudspeaker
Column loudspeaker 40 W, aluminum extruded enclosure, water and dust protected IP65, white RAL 9010.
Order number **LA1-UM40E-1**

Accessories

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

LM1-CB Carrier Bag for two floorstands
Carrying bag for storing and transporting two floor stands.
Order number **LM1-CB**

LA1-UMx0E Metal Column Loudspeakers

Features

- Good speech intelligibility and background music reproduction
- For applications where directivity is important
- Slim-line weatherproof design
- Swivel wall mounting bracket supplied as standard
- Robust aluminum construction

The LA1-UM20E and LA1-UM40E metal column loudspeakers deliver professional performance from a robust, yet aesthetically designed aluminum enclosure in a white finish.
It is an ideal loudspeaker column where sound beaming is required, for both indoor and outdoor use in passenger terminals, places of worship, conference venues, theme parks, swimming pools, factories, exhibition areas.
A swivel wall mounting bracket is supplied as standard, allowing accurate positioning.

Functions

Voice alarm

Voice alarm loudspeakers are specifically designed for use in applications, where the performance of PA systems is subject to official regulations. The LA1-UM20E and LA1-UM40E are designed for voice alarm systems, and are compliant with British Standard BS 5839-8 and EN 60849.

Protection

Both loudspeaker columns have built-in protection to ensure that in the event of a fire damage does not cause failure of the connected circuit. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation.

Connections and safety

The loudspeaker columns have a ceramic terminal block, thermal fuse, and heat-resistant, high-temperature wiring. The column has a provision for internally mounting the optional line/loudspeaker supervision board.

Loudspeaker output power setting

Four primary taps are provided on the built-in matching transformer. Loudspeaker output power setting is done on the build-in transformer and connected to a rotary vary-tap switch located in the back of the enclosure to allow simple output power setting. An 8 ohms setting and switch-off position is also provided on the rotary vary-tap switch.

Certifications and approvals

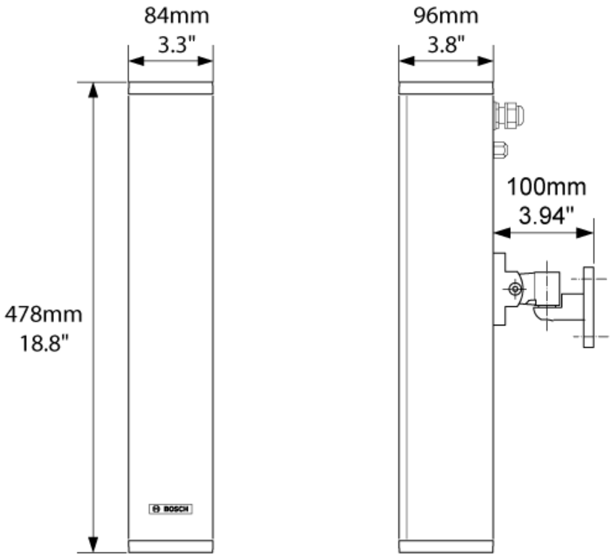
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that the speakers can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to greater customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8
	acc. to EN 60849
Water and dust protection	acc. to EN 60529 IP 65

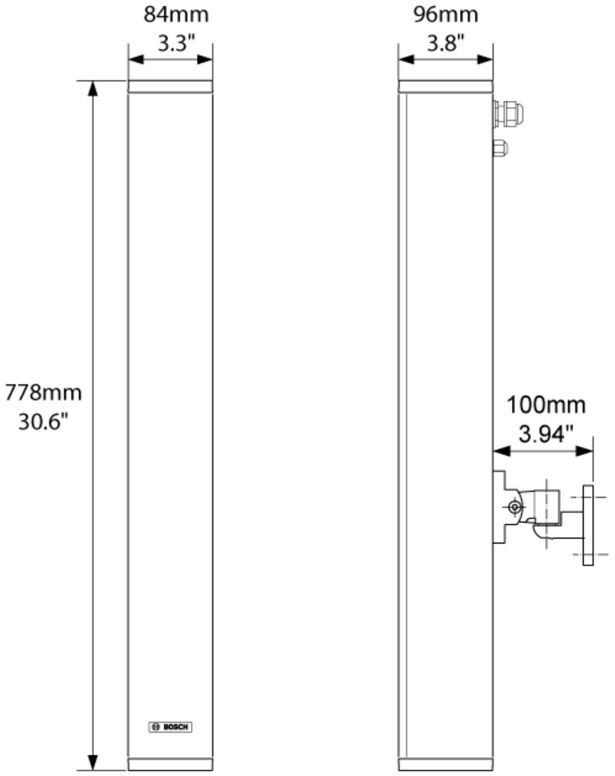
Region	Certification
Europe	CPD

Installation/configuration notes

The column loudspeakers can be wall mounted using the swivel wall bracket standard supplied, or directly onto a floor stand LBC 1259/00 with an M10 threaded bolt without additional accessories. The bracket is attached on a slider, which can be placed and secured in any desired position along the rear of the enclosure. Standard supplied with 2 m connection cable, but these can be replaced during installation with any other type of connection cable.
The connection cable is fed out through a cable gland (PG 20) in the top rear of the enclosure. For loop through connection, a second hole (covered as standard supplied) is provided.

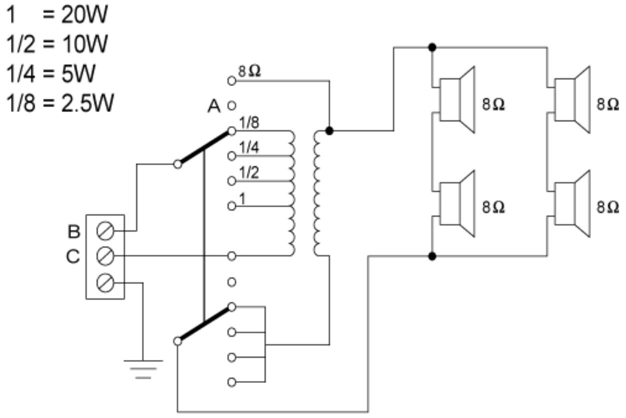

84mm
3.3"
96mm
3.8"
100mm
3.94"
478mm
18.8"
BOSCH

LA1-UM20E Dimensions mm (in)

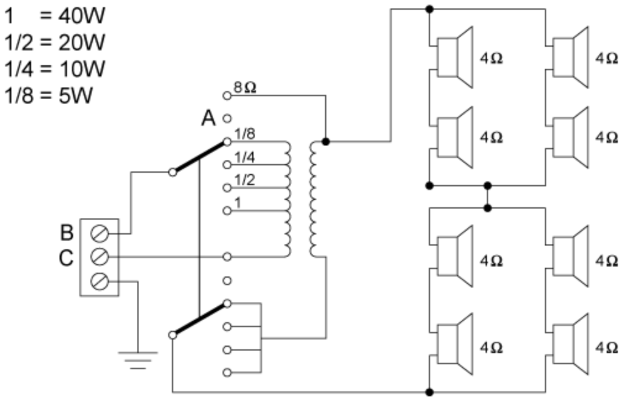

84mm
3.3"
96mm
3.8"
778mm
30.6"
100mm
3.94"
BOSCH

LA1-UM40E Dimensions mm (in)

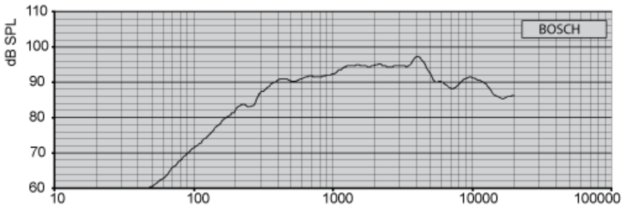
LA1-UM20E / LA1-UM40E Back view


1 = 20W
1/2 = 10W
1/4 = 5W
1/8 = 2.5W
8Ω
A
1/8
1/4
1/2
1
B
C
8Ω
8Ω
8Ω
8Ω

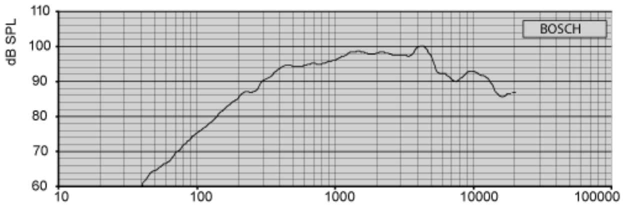
LA1-UM20E Circuit diagram (A: OFF, B: Phase, C: Common)


1 = 40W
1/2 = 20W
1/4 = 10W
1/8 = 5W
8Ω
A
1/8
1/4
1/2
1
B
C
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω
4Ω

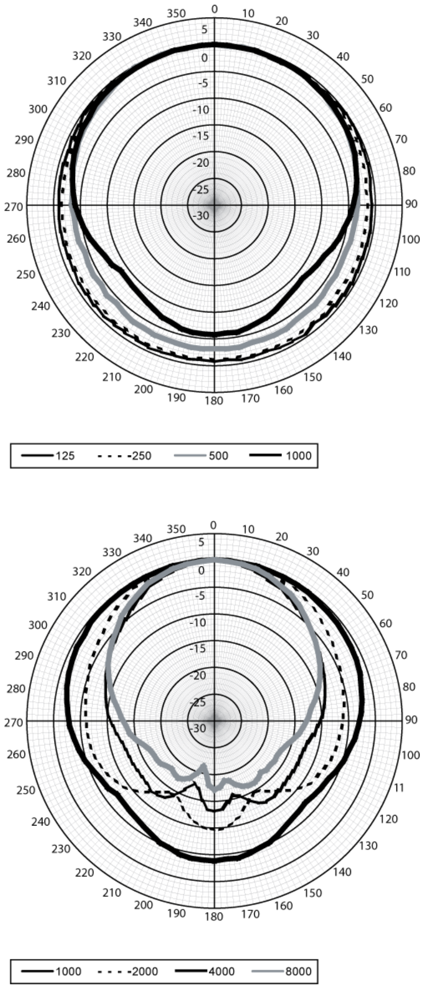
LA1-UM40E Circuit diagram (A: OFF, B: Phase, C: Common)



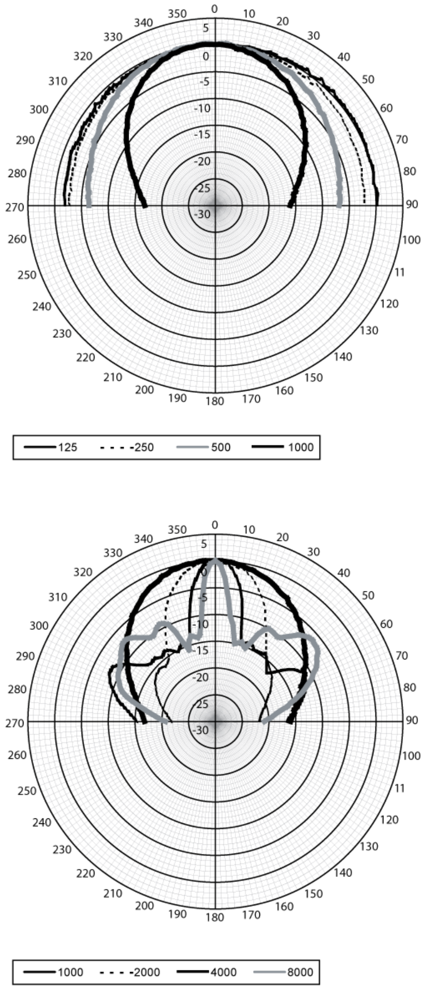
LA1-UM20E Frequency response



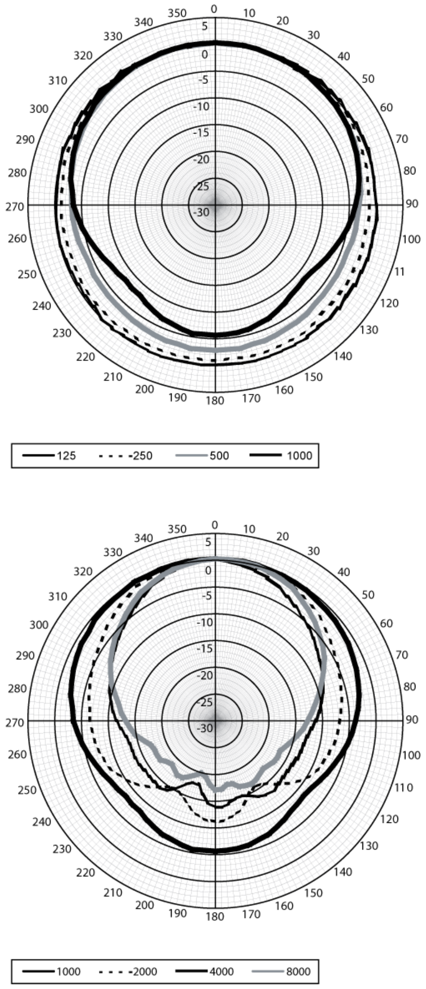
LA1-UM40E Frequency response



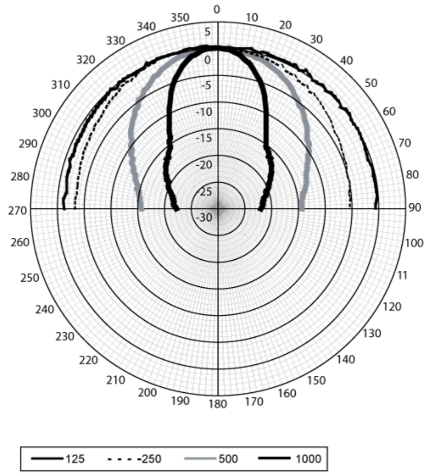
LA1-UM20E Polar-diagram (horizontal)

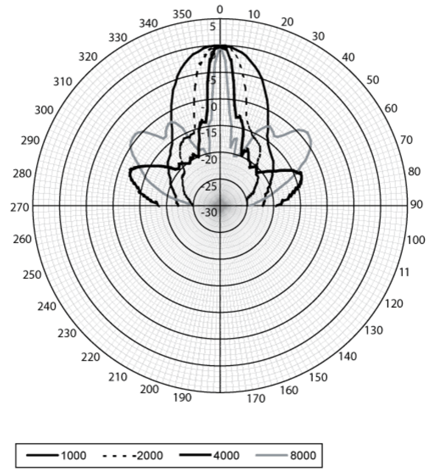


LA1-UM20E Polar diagram (vertical)



LA1-UM40E Polar diagram (horizontal)





LA1-UM40E Polar diagram (vertical)

Octave band sensitivity LA1-UM20E

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	72.2	-	-
250 Hz	81.9	-	-
500 Hz	89.7	-	-
1000 Hz	91.9	-	-
2000 Hz	94.2	-	-
4000 Hz	94.8	-	-
8000 Hz	90.0	-	-
A-weighted	-	90.2	102.3
Lin-weighted	-	90.1	101.6

Octave band opening angles LA1-UM20E

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	150	
1000 Hz	210	82	
2000 Hz	150	43	
4000 Hz	96	23	
8000 Hz	98	11	

Octave band sensitivity LA1-UM40E

	Octave SPL 1W/m	Total octave SPL 1W/m	Total octave SPL Pmax/m
125 Hz	76.2	-	-
250 Hz	86.0	-	-
500 Hz	93.4	-	-
1000 Hz	95.8	-	-
2000 Hz	97.8	-	-
4000 Hz	98.1	-	-
8000 Hz	92.0	-	-
A-weighted	-	93.7	109.0
Lin-weighted	-	93.4	107.9

Octave band opening angles LA1-UM40E

	Horizontal	Vertical	
125 Hz	360	>180	
250 Hz	360	>180	
500 Hz	360	80	
1000 Hz	211	40	
2000 Hz	150	22	
4000 Hz	94	12	
8000 Hz	106	6	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

Quantity	Components
1	LA1-UMx0E Metal Column loudspeaker
1	Wall mounting bracket
1	Installation instruction

Technical specifications

Electrical*

Description	LA1-UM20E	LA1-UM40E
Maximum power	30 W	60 W
Rated power (PHC)	20 W	40 W
Power tapping	20 / 10 / 5 / 2.5 W	40 / 20 / 10 / 5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	105 / 92 dB (SPL)	112 / 96 dB (SPL)

Effective frequency range (-10 dB)	240 Hz to 16 kHz	250 Hz to 16 kHz
Horizontal opening angle at 1 kHz / 4 kHz (-6 dB)	210°/ 82°	212°/ 94°
Vertical opening angle at 1 kHz / 4 kHz (-6 dB)	82°/ 24°	40°/ 12°
Rated input voltage	100 V	100 V
Rated impedance	500 ohm / 8 ohm	250 ohm / 8 ohm

* Technical performance data acc. to IEC 60268-5

Mechanical

	LA1-UM20E	LA1-UM40E
Dimensions (W x D)	450 x 84 x 96 mm (17.7 x3.3 x 3.8 in)	750 x 84 x 96 mm (29.5 x3.3 x 3.8 in)
Weight	2.9 kg (6.4 lb)	4.4 kg (9.7 lb)
Color	White (RAL 9010)	White (RAL 9010)
Material (housing and grille)	Extruded aluminum / steel	Extruded aluminum / steel
Connection	2 m 3-wire cable	2 m 3-wire cable
Connector (phase, common, earth)	3-pole screw block	3-pole screw block

Environmental

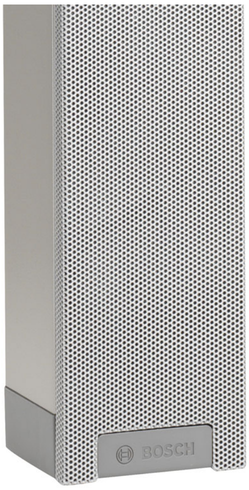
Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

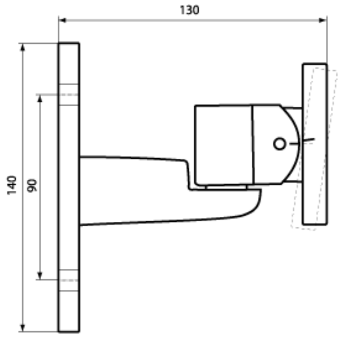
Ordering information

LA1-UM20E Metal Column Loudspeaker
20 W
Order number **LA1-UM20E**

LA1-UM40E Metal Column Loudspeaker
40 W
Order number **LA1-UM40E**

LBC 3200/00 Line Array Indoor Loudspeaker





Dimensions in mm of included mounting bracket (with marked angle)

Features

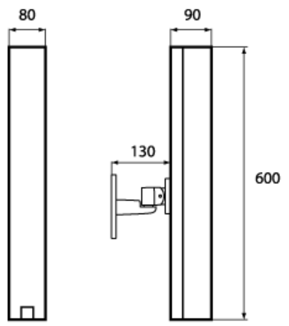
- Extended listening area
- Excellent intelligibility of speech and music
- Uniform distribution of natural sound throughout the room
- Ideal combination of advanced acoustics and easy application
- EN 54-24 certified

This loudspeaker, with its good directivity, can handle small and medium indoor environments such as congress venues, meeting rooms, showrooms and canteens. The full frequency range of the LBC 3200/00 makes it ideal for speech as well as music reproduction. Its exceptionally narrow housing (only 8 cm wide) makes it extremely unobtrusive.

System overview

A wall bracket for mounting the line array onto walls and pillars is included with the loudspeaker. It is fully adjustable in two perpendicular planes for accurate positioning. For temporary installations, the LBC 3200/00 can be mounted on an LBC 1259/01 floor stand with an M10 threaded bolt without additional accessories.

Detail mounting bracket



Dimensions in mm

Mounted on optional loudspeaker stand (LBC 1259/01)

A three-way, ceramic terminal block with screw connections suitable for loop-through wiring is located in a compartment at the base of the loudspeaker. There is also a switch, which allows the selection of nominal full power (30 W), half power (15 W), or quarter power (7.5 W). The compartment has knockout slots for cables.

Functions

Range of Application

The LBC 3200/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. The positioning of the loudspeaker drivers has resulted in greatly improved audio directivity. The specially developed high quality drivers enable reproduction of remarkably clear, natural sound, giving excellent intelligibility of both speech and music. Greater coverage is achieved, so more people can be reached with perceptually perfect sound. All this makes this small line array loudspeaker very suitable for use in small to medium sized applications.

Easy Installation

The positioning of the drivers in the array generates larger vertical opening angles for high frequencies, reducing the narrow 'beaming' of higher tones. As an example, the vertical opening angle is still 18° at 4 kHz. Having larger vertical opening angles makes installation easier, as the positioning of the loudspeakers is easier because they cover a wider area. An extremely wide horizontal opening angle of 130° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes

All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, and a number of unwanted side lobes. The LBC 3200/00 has highly suppressed side lobes in the vertical plane, typically at least 8 dB of suppression from the 500 Hz octave band at 90°. This provides a much clearer, less colored sound, and greatly reduces the possibilities for acoustic feedback.

Sound Reproduction

The positioning and very high quality of the 2 inch drivers contribute significantly in making the LBC 3200/00 a very efficient line array. With a sound pressure level of 106 dB at 1 m, at 30 W, loud and clear sound reproduction is possible even at a significant distance from the loudspeaker.
The high-quality loudspeaker drivers used in the LBC 3200/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 18 kHz. This ensures that all important frequencies for superb speech intelligibility are heard in the listening area.

Emergency Compliant

The loudspeakers ceramic terminal block, thermal fuse and heat-resistant, high-temperature wiring ensures that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. This maintains system integrity, ensuring that loudspeakers within the same loudspeaker zone in other areas can still be used to inform people of the situation.

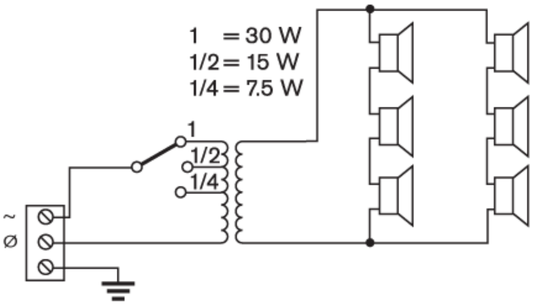
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

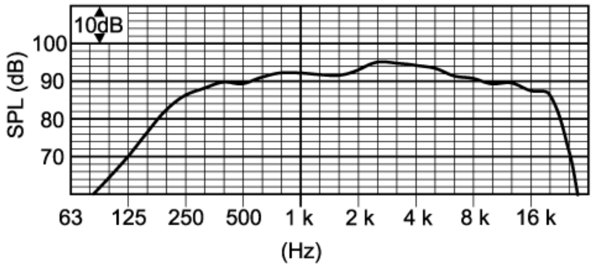
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Impact	acc. to EN 50102, IK 07
Water and dust protection	acc. to IEC 60529, IP 32

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

Installation/configuration notes



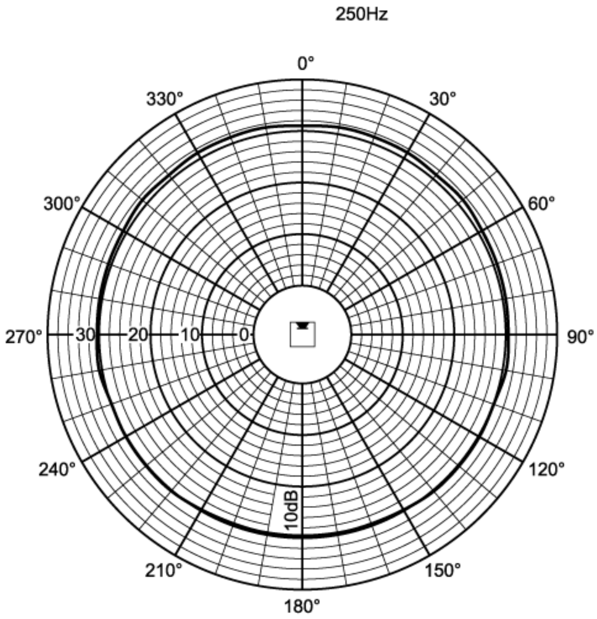
Circuit diagram



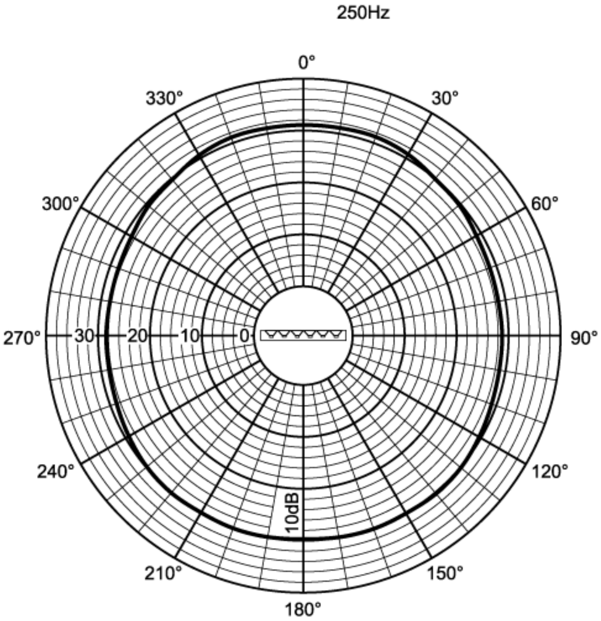
Frequency response

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	89	91	93	93	89
SPL max.	102	104	106	108	108	104
Q-factor	1.3	2.2	4.5	11.6	25.7	58.9
H. angle (deg)	360	360	220	190	130	100
V. angle (deg)	360	120	70	32	18	10

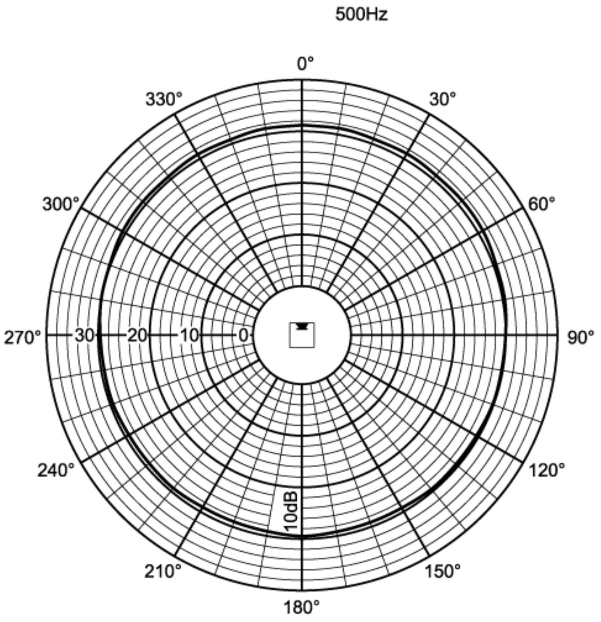
Acoustical performance specified per octave



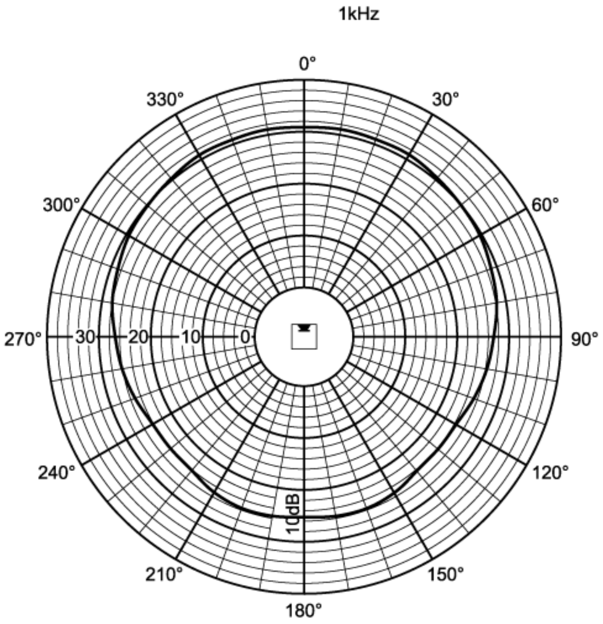
Polar diagram horizontal



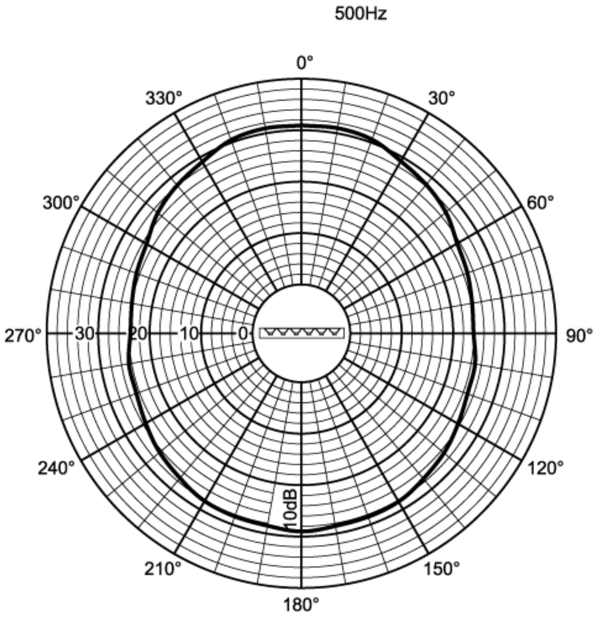
Polar diagram vertical



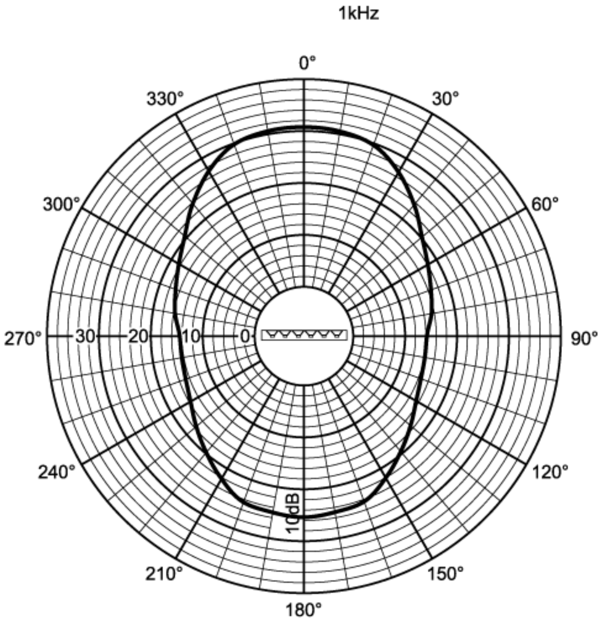
Polar diagram (horizontal)



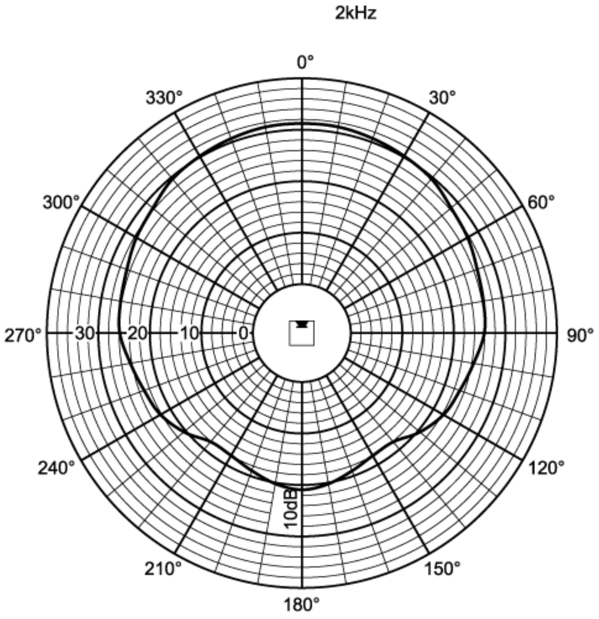
Polar diagram (horizontal)



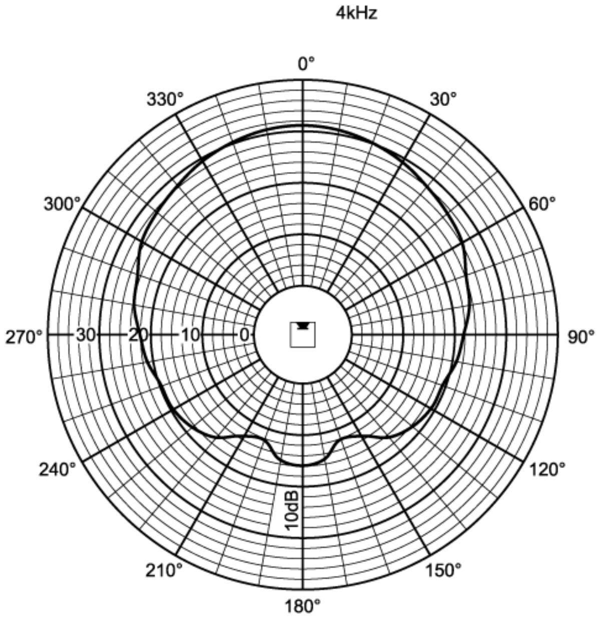
Polar diagram (vertical)



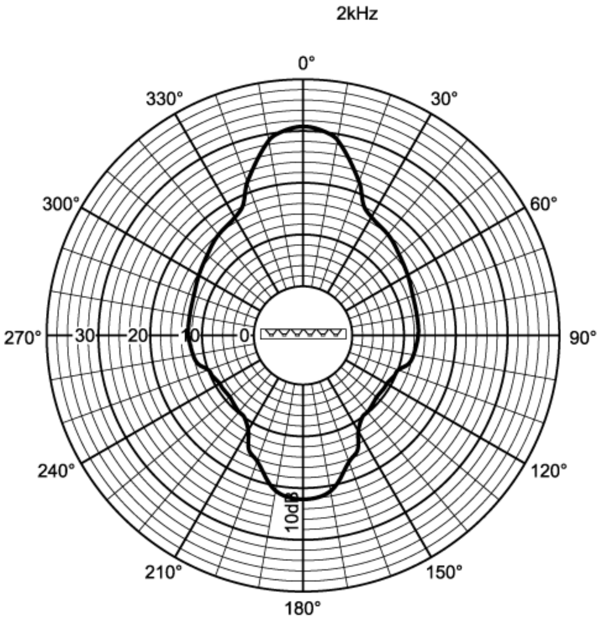
Polar diagram (vertical)



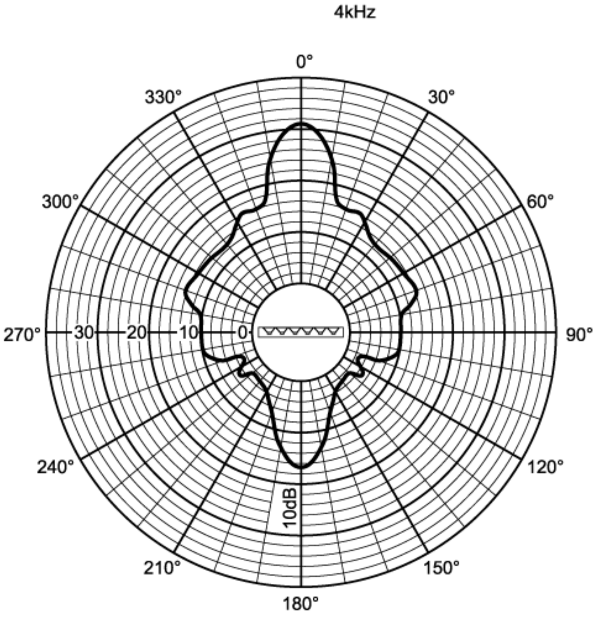
Polar diagram (horizontal)



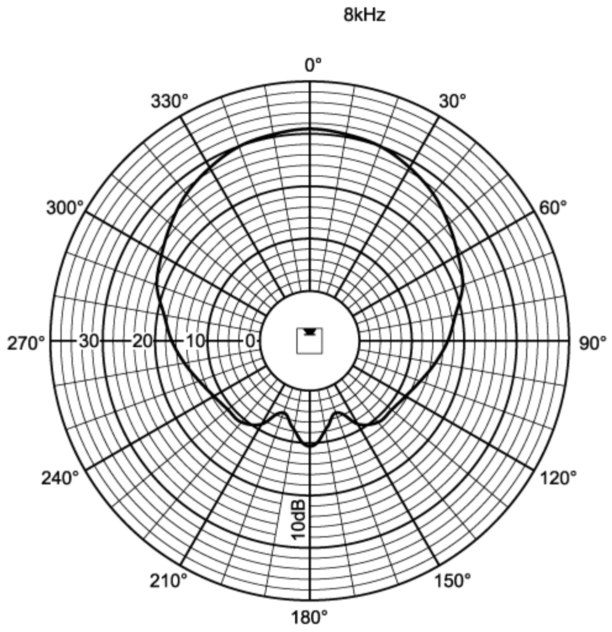
Polar diagram (horizontal)



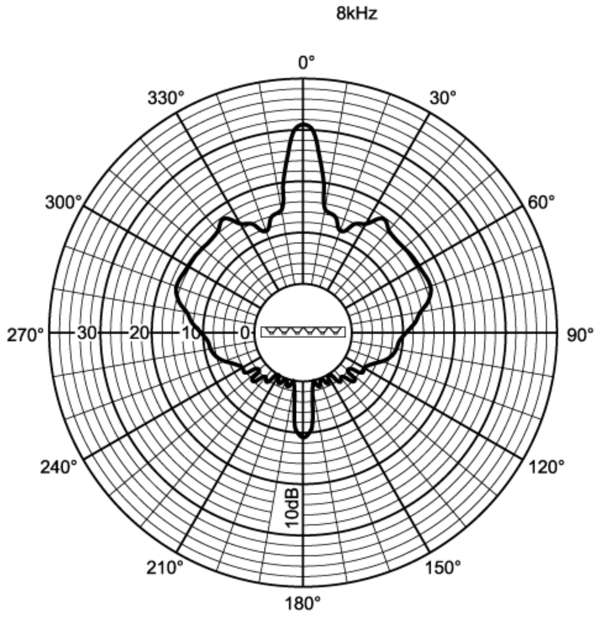
Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)



Polar diagram (vertical)

Parts included

Quantity	Component
1	LBC 3200/00 Line Array Loudspeaker
1	Wall mounting bracket

Technical specifications

Electrical*

Maximum power	45 W
Rated power	30 / 15 / 7.5 W
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)
Sound pressure level at 30 W / 1 W (2 kHz, 1 m)	108 / 93 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	220° / 130°
vertical	70° / 18°
Rated input voltage	100 V
Rated impedance	333 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	600 x 80 x 90 mm (23.62 x 3.15 x 3.54 in)
Weight	3 kg (6.6 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0254

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Line Array 30W
LBC 3200/00
Type A

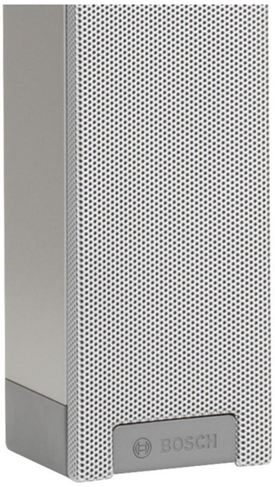
Ordering information

LBC 3200/00 Line Array Indoor Loudspeaker
Line array loudspeaker for small and medium indoor environments, 30 W, extended listening area, aluminum extruded enclosure, EN54-24 certified, light gray, swivel wall-mounting bracket included.
Order number **LBC3200/00**

Accessories

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

LBC 3201/00 Line Array Indoor Loudspeaker



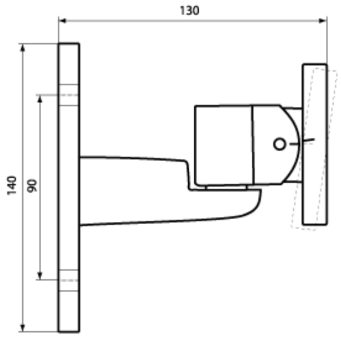
Features

- Extended listening area
- Excellent intelligibility of speech and music
- Uniform distribution of natural sound throughout the room
- Excellent directivity for use in acoustically difficult, reverberant applications
- EN 54-24 certified

This loudspeaker, with its excellent directivity and high power output, can handle medium and large (reverberant) indoor environments, especially the more acoustically challenging ones. It is typically used in congress venues, meeting halls and places of worship. The full frequency range of the LBC 3201/00 makes it ideal for speech as well as music reproduction. Its exceptionally narrow housing (only 8 cm wide) makes it extremely unobtrusive.

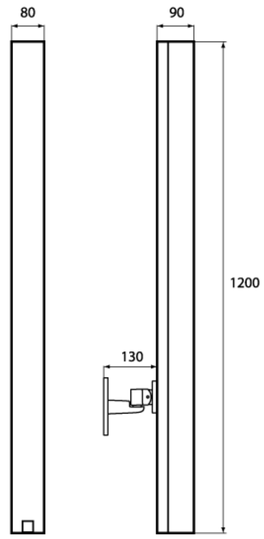
System overview

A time and labor-saving mounting method has been developed for the LBC 3201/00. The loudspeaker comes with a chart, which shows the ideal installation height for the area that the loudspeaker has to cover. Once the appropriate height has been determined for a given area, the loudspeaker is mounted at an angle marked on the mounting bracket. This procedure is much simpler and more accurate than traditional trial and error installation methods. The LBC 3201/00 can be mounted on a wall or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories.



Dimensions in mm of included mounting bracket (with marked angle)

Detail mounting bracket



Dimensions in mm

Mounted on optional loudspeaker stand (LBC 1259/01)

Functions

Range of application
The LBC 3201/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. Advanced filtering and positioning of the loudspeaker drivers has resulted in greatly improved audio directivity. Each speaker driver produces a dedicated frequency range.

The specially developed high quality drivers enable reproduction of remarkably clear, natural sound, which gives excellent intelligibility of both speech and music.

The difference between a conventional column loudspeaker and this line array is noticeable in several ways. There is uniform sound distribution throughout the whole listening area: not too loud at the front, not to quiet at the back. All relevant frequencies are present everywhere in the listening area. Greater coverage is achieved, so more people can be reached with speech and music with a higher intelligibility level. All these important features give the experience of a very natural sound quality in the whole listening area.

Easy installation
The advanced filtering generates larger vertical opening angles for high frequencies, so there is less narrow 'beaming' of higher tones in the vertical plane. As an example, at 4 kHz the vertical opening angle is still 22°. Having more constant vertical opening angles makes installation easier, as the positioning of the loudspeakers is less critical because they cover a wider area. An extremely wide horizontal opening angle of 132° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes
All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, as well as a number of unwanted side lobes. The LBC 3201/00 has highly suppressed side lobes in the vertical plane, typically at least 10 dB suppression of the 250 Hz octave band at 90°, resulting in a much clearer, less 'colored' sound, even when close to the loudspeakers. This gives the line array superb speech intelligibility.

Sound Reproduction
The positioning and very high quality of the 2-inch drivers contribute significantly towards making the LBC 3201/00 a very efficient line array. With a sound pressure level of 110 dB at 1 m, and at 60 W, loud and clear sound reproduction is possible even at considerable distances from the loudspeaker.
The high-quality loudspeaker drivers used in the LBC 3201/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 18 kHz. Together with the constant directivity, this ensures that all important frequencies are heard in the listening area.

Emergency Compliant
The loudspeaker has a ceramic terminal block, a thermal fuse, and heat-resistant, high-temperature wiring. These ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. Thus, system integrity is maintained, and loudspeakers within the same loudspeaker zone in other areas can still be used to inform people of the situation.

The three-way ceramic terminal block with screw connections is suitable for loop-through wiring, and is located in a compartment at the base of the loudspeaker column. There is also a switch, which allows the selection of nominal full power (60 W), half power (30 W) or quarter power (15 W). The compartment has knockout slots for accommodating cables.

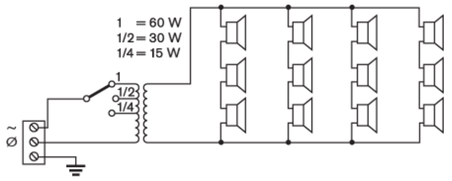
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

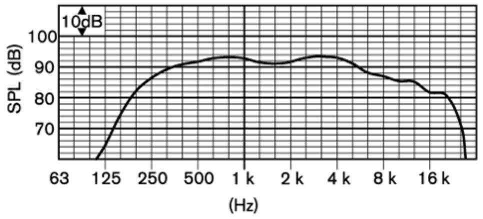
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 32
Impact	acc. to EN 50102, IK 07

Region	**Certification**
Europe	CE
	CPD
Poland	CNBOP

Installation/configuration notes



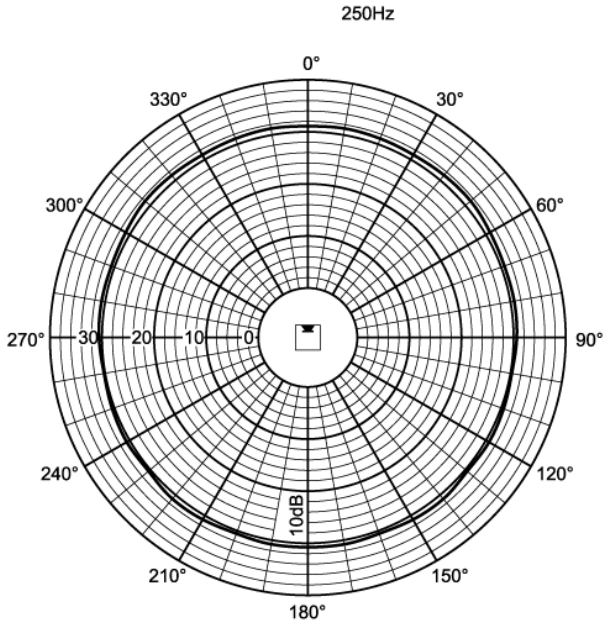
Circuit diagram



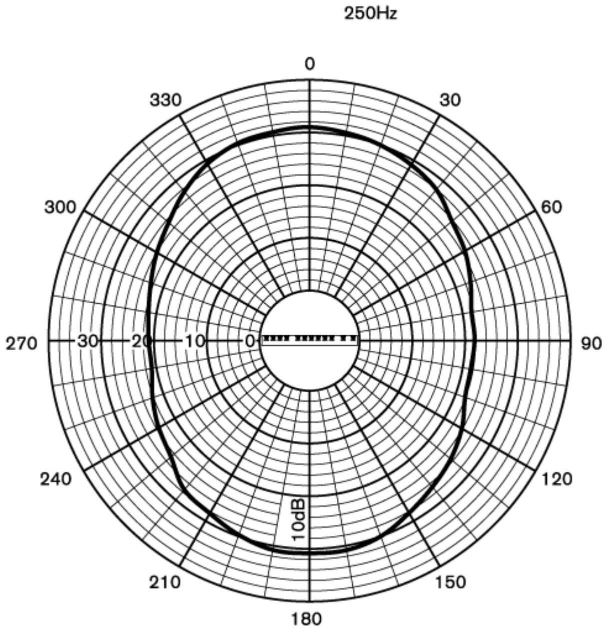
Frequency response

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	88	92	92	91	91	86
SPL max.	106	110	110	109	109	104
Q-factor	2.2	3.2	6.5	12.6	23.4	53.3
H. angle (deg)	360	360	210	192	132	100
V. angle (deg)	107	67	50	33	22	12

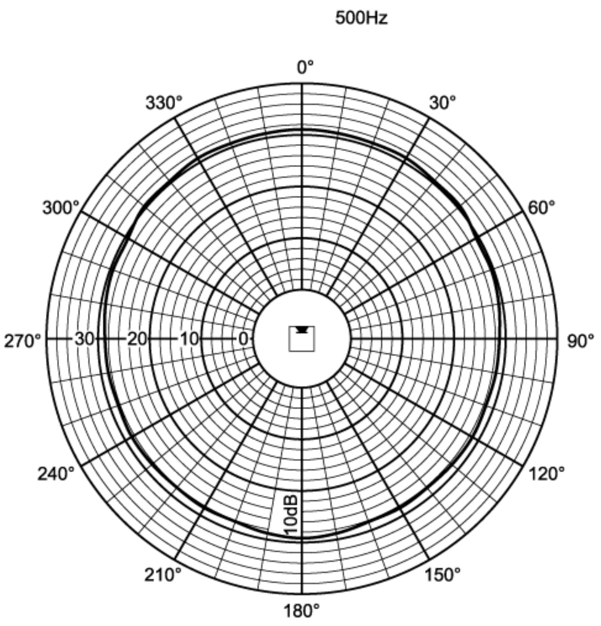
Acoustical performance specified per octave



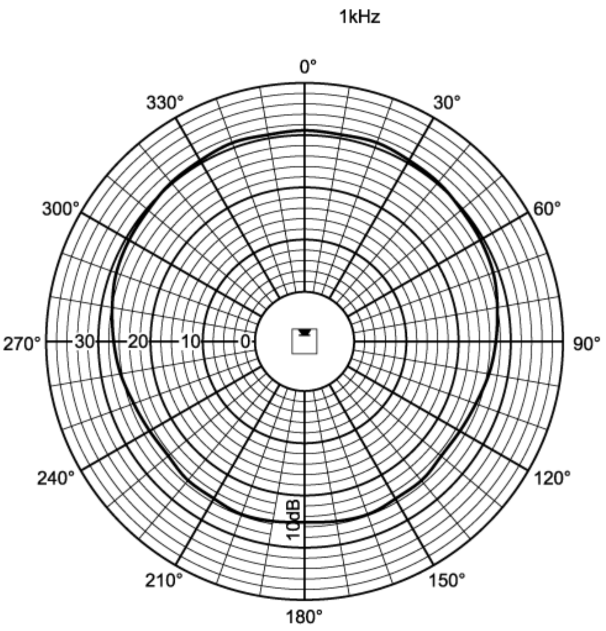
Polar diagram (horizontal)



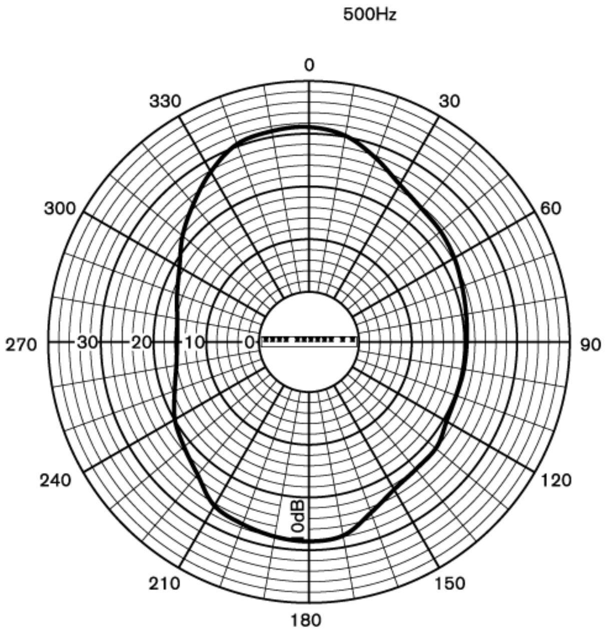
Polar diagram (vertical)



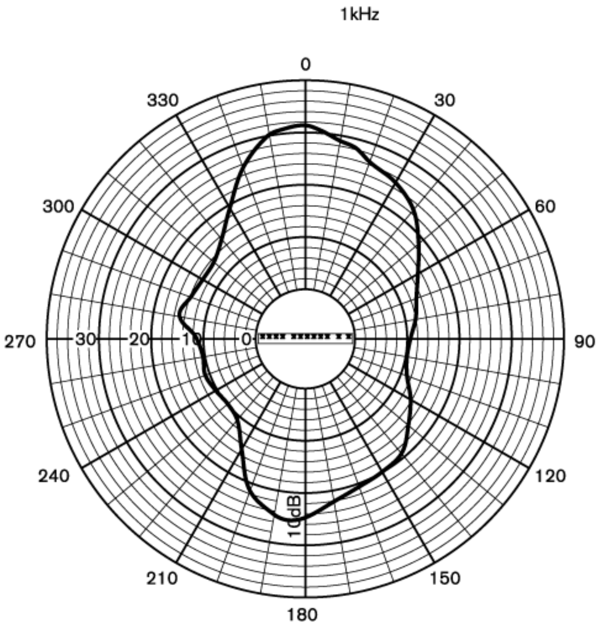
Polar diagram (horizontal)



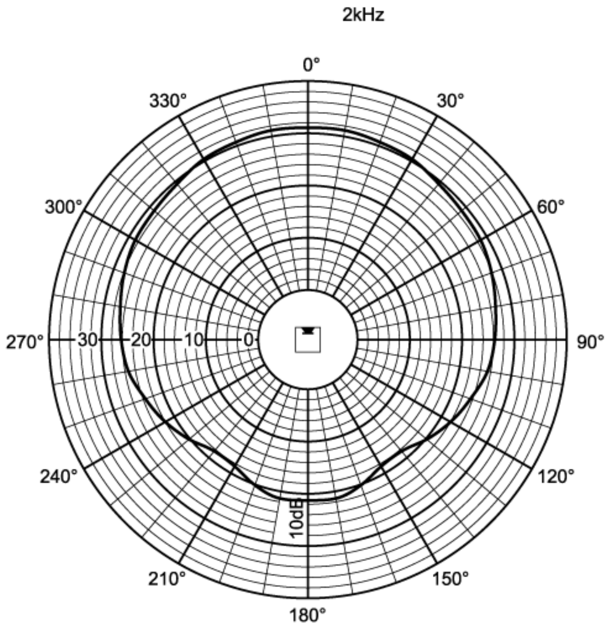
Polar diagram (horizontal)



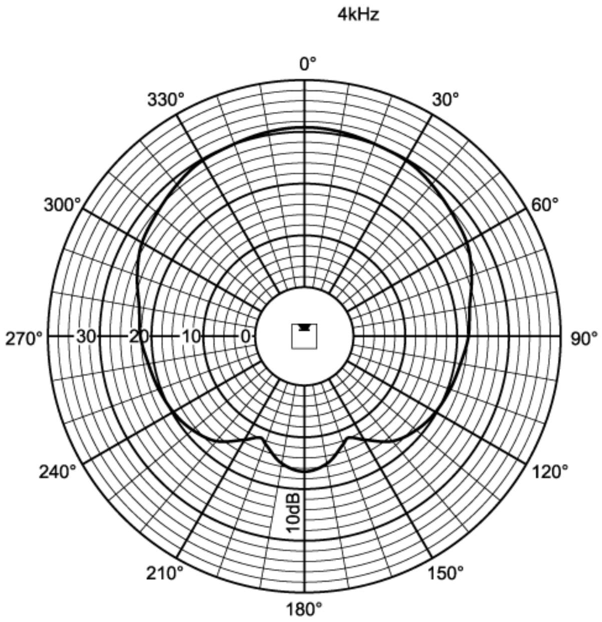
Polar diagram (vertical)



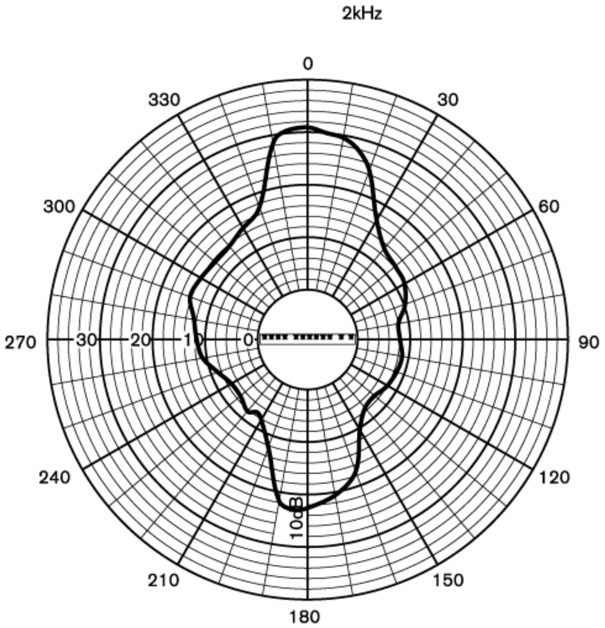
Polar diagram (vertical)



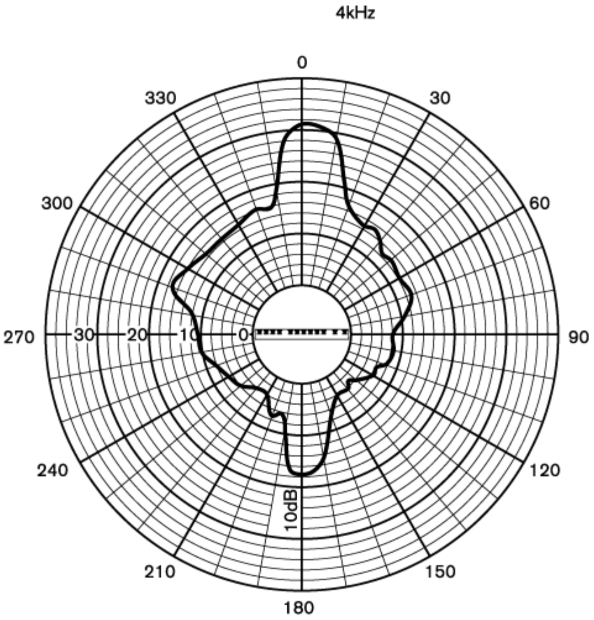
Polar diagram (horizontal)



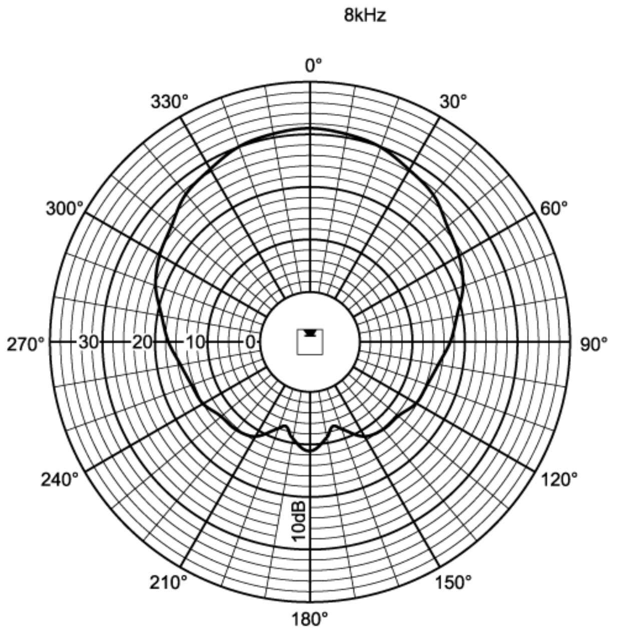
Polar diagram (horizontal)



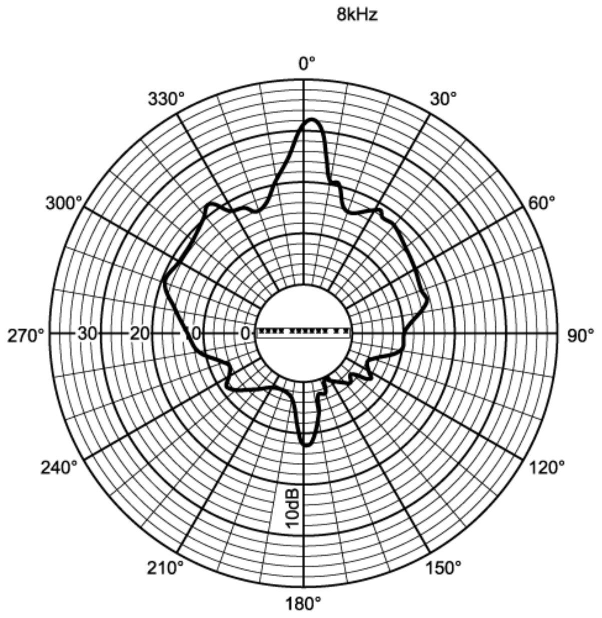
Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)



Polar diagram (vertical)

Parts included

Quantity	Components
1	LBC 3201/00 Line Array Loudspeaker
1	Wall mounting bracket
1	Attachment piece
1	Installation chart

Technical specifications

Electrical*

Maximum power	90 W
Rated power	60 / 30 / 15 W
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	110 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 18 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	210° / 132°
vertical	50° / 22°
Rated input voltage	100 V
Rated impedance	167 ohm
Connector	Screw terminal block

*) Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	1200 x 80 x 90 mm (47.24 x 3.15 x 3.54 in)
Weight	6,4 kg (14,1 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0254

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Line Array 60W
LBC 3201/00
Type A

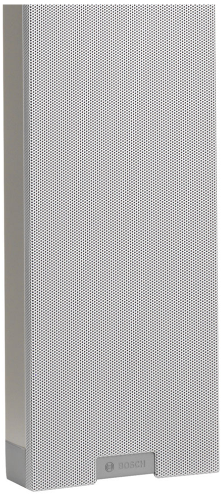
Ordering information

LBC 3201/00 Line Array Indoor Loudspeaker
Line array loudspeaker for large (reverberant) indoor environments, 60 W, extended listening area, aluminum extruded enclosure, EN54-24 certified, light gray, swivel wall-mounting bracket included.
Order number **LBC3201/00**

Accessories

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

LBC 3210/00 Line Array Indoor/Outdoor Loudspeaker



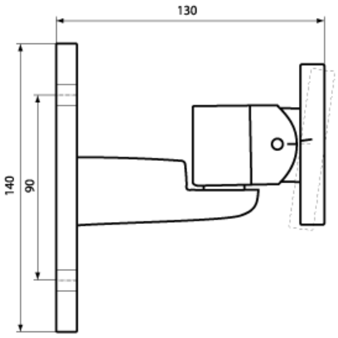
Features

- Extended listening area
- Excellent intelligibility of speech and music
- Uniform distribution of natural sound throughout the room
- Provision for inside mounting the optional line/ loudspeaker supervision board
- EN 54-24 certified

This loudspeaker, with its excellent directivity and high power output, can handle large (reverberant) indoor environments like airport departure lounges, train stations and congress venues. It is also suitable for outdoor use, for instance in railway stations or sports stadiums. Its full frequency range makes it ideal for speech as well as music reproduction.

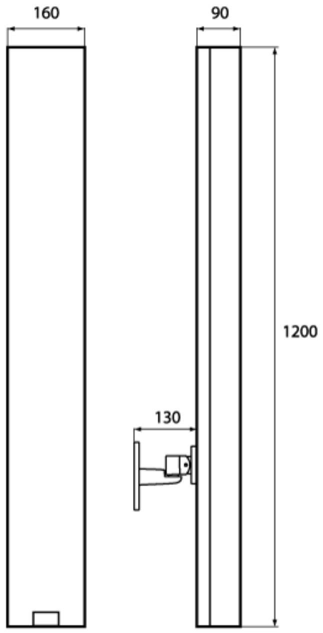
System overview

A time- and labor-saving mounting method has been developed for the LBC 3210/00. A chart is supplied with the loudspeaker, which shows the ideal installation height for the area the loudspeaker has to cover. Once the appropriate height has been determined for a given area, the loudspeaker is mounted at an angle marked on the mounting bracket. This simple procedure is very much simpler and more accurate than traditional trial and error installation methods. The LBC 3210/00 can be mounted on a wall or directly onto a floor stand LBC 1259/01 with an M10 threaded bolt without additional accessories.



Mounting bracket (included) with marked angle. Dimensions in mm

Detail mounting bracket



Dimensions in mm

Mounted on optional loudspeaker stand (LBC 1259/01)

Functions

Range of Application

The LBC 3210/00 is part of the XLA 3200 (eXtended Listening Area) range of line array loudspeakers. Advanced filtering and positioning of the loudspeaker drivers has resulted in greatly improved audio directivity. Each speaker driver produces a dedicated frequency range. The difference between a conventional column loudspeaker and this line array is noticeable in several ways. There is uniform sound distribution throughout the whole listening area: not too loud at the front, not too quiet at the back. All relevant frequencies are present everywhere in the listening area. Greater coverage is achieved, so more people can be reached with speech and music with a higher intelligibility level. All these important features will give the experience of a very natural sound quality in the whole listening area.

Easy Installation

The advanced filtering generates larger vertical opening angles for high frequencies, so there is less narrow 'beaming' of higher tones. Compared to conventional column loudspeakers, this line array has a more constant opening angle for all relevant frequencies. As an example, at 4 kHz the vertical opening angle is still 18°. Having more constant vertical opening angles makes installation easier, as the positioning of the loudspeakers is less critical because they cover a wider area. An excellent horizontal opening angle of 90° at 4 kHz means that a single loudspeaker can provide natural sound reproduction over an extensive listening area.

Suppressed Side Lobes

All conventional column loudspeakers produce a main lobe of sound, which is directed at listeners, and a number of unwanted side lobes. The LBC 3210/00 has highly suppressed side lobes in the vertical plane, typically at least 10 dB from the 250 Hz octave band at 90°, resulting in a much clearer, less 'colored' sound, even when close to the loudspeakers. This gives the line array loudspeaker superb intelligibility of both speech and music.

Sound Reproduction

The positioning and very high quality of the 4-inch drivers contribute significantly in making the LBC 3210/00 a very efficient line array. With a sound pressure level of 115 dB at 1 m at 60 W, loud and clear sound reproduction is possible even at considerable distances from the loudspeaker.

The high-quality loudspeaker drivers used in the LBC 3210/00 give excellent, natural sound reproduction of frequencies ranging from 190 Hz to 20 kHz. Together with the constant directivity this ensures that all important frequencies are heard in the listening area.

Emergency Compliant

The loudspeakers ceramic terminal block, thermal fuse and heat-resistant, high-temperature wiring, ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas within the same loudspeaker zone can still be used to inform people of the situation.

The line arrays have provision for mounting the optional line/loudspeaker supervision board.

A three-way ceramic terminal block with screw connections suitable for loop-through wiring is located in a compartment at the base of the loudspeaker column. There is also a switch which allows the selection of nominal full power (60 W), half power (30 W) or quarter power (15 W). The compartment has knock-out slots for accommodating cables.

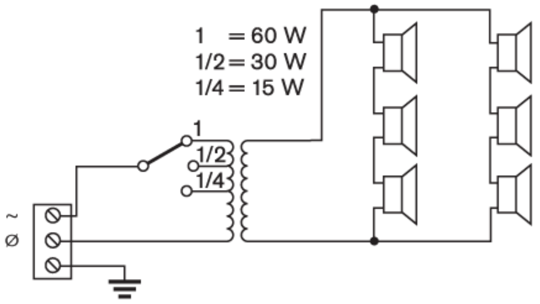
Certifications and approvals

All Bosch loudspeakers are designed to withstand operation at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. These loudspeakers also comply with the Simulated Acoustical Feedback Exposure (SAFE) test, which demonstrates that they can withstand acoustical feedback at full power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life and much less chance of failure or performance deterioration.

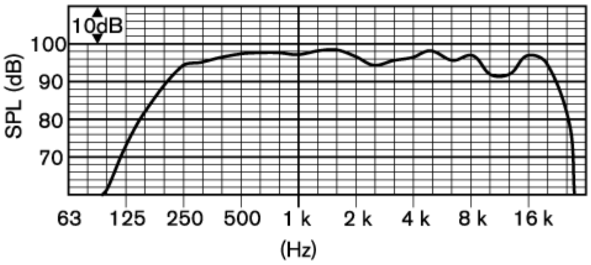
Safety	acc. to EN 60065 and CE
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 66
Impact	acc. to EN 50102, IK 07
Wind-force	acc. to NEN 6702 :2007 + A1 :2008, Bft 11

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

Installation/configuration notes



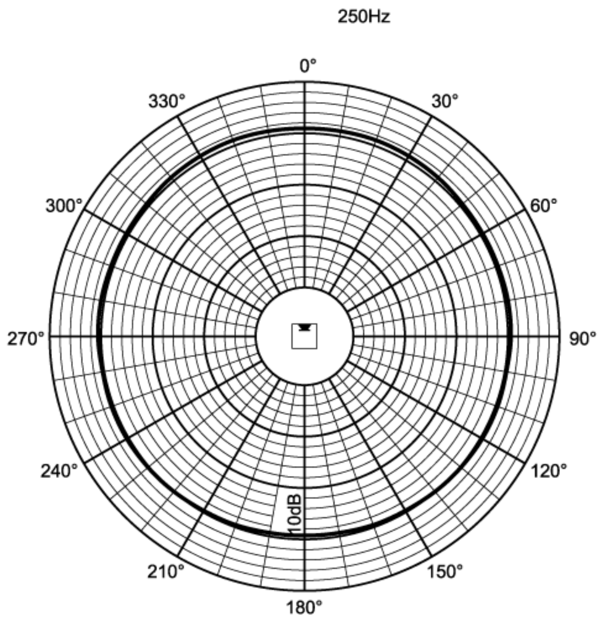
Circuit diagram



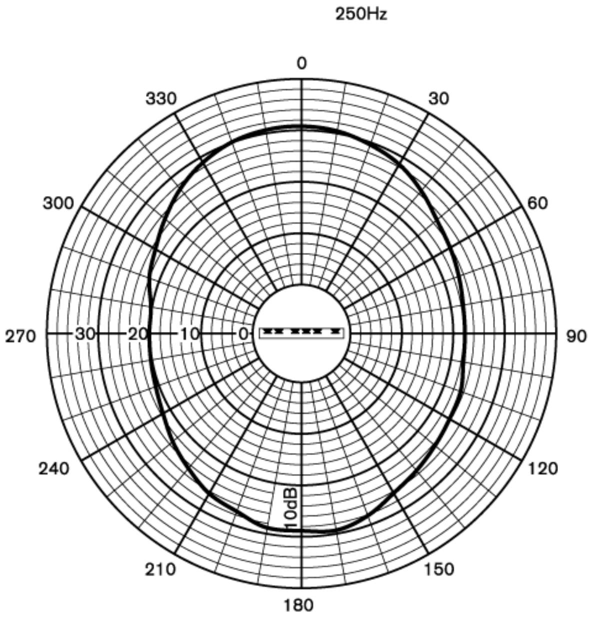
Frequency response

	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	97	97	95	96	93
SPL max.	112	115	115	113	114	111
Q-factor	2.2	2.7	6.3	10.8	22.6	32.3
H. angle (deg)	360	180	170	160	90	60
V. angle (deg)	100	60	55	34	18	10

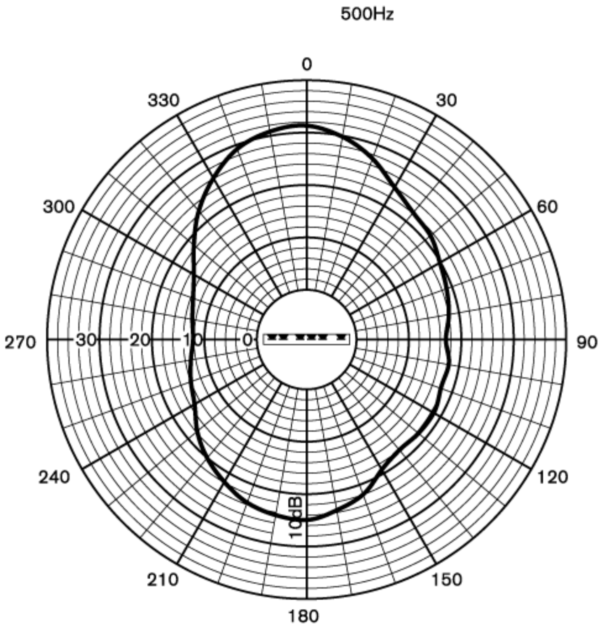
Acoustical performance specified per octave



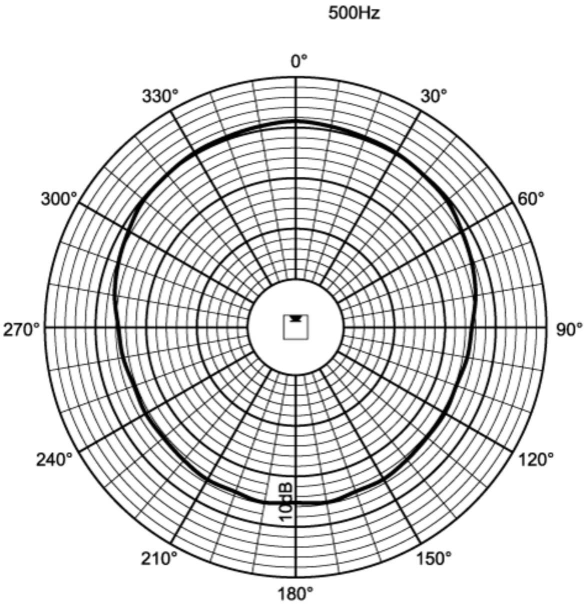
Polar diagram (horizontal)



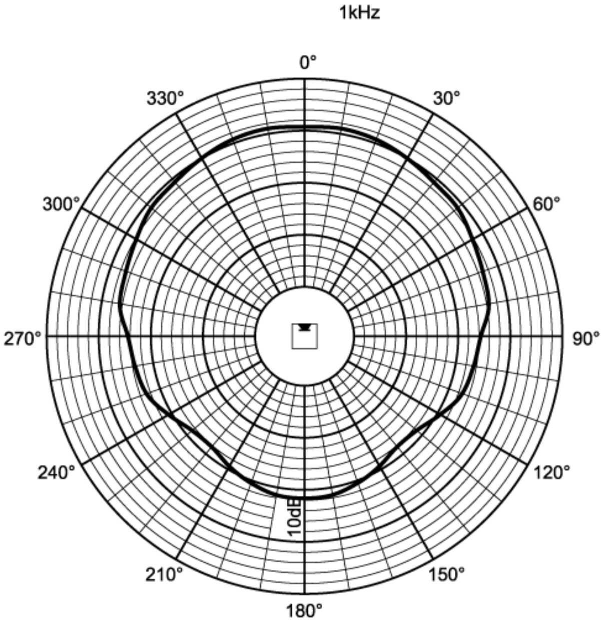
Polar diagram (vertical)



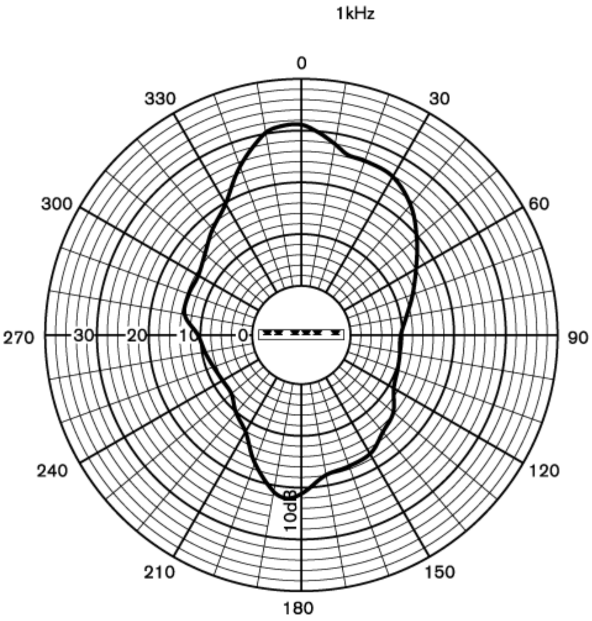
Polar diagram (vertical)



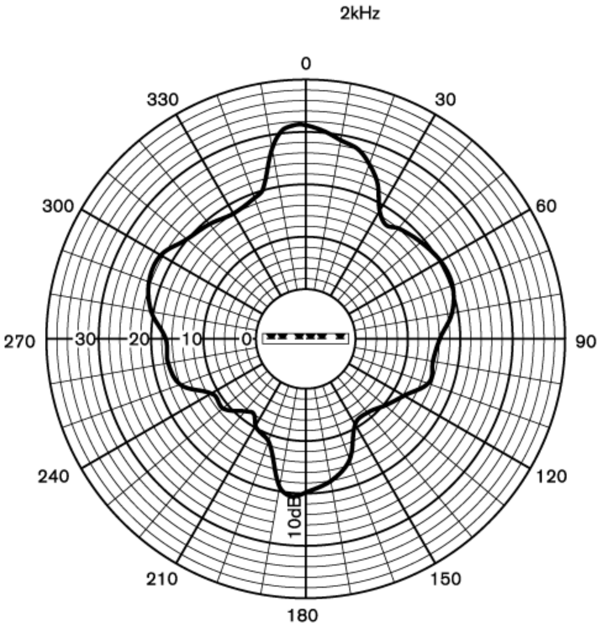
Polar diagram (horizontal)



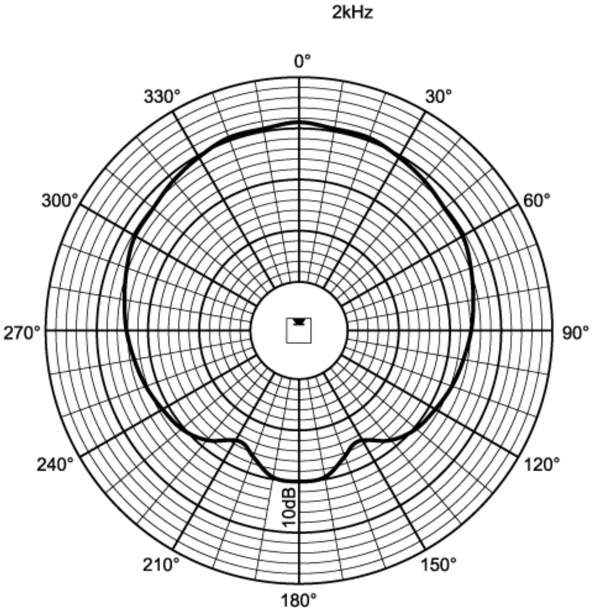
Polar diagram (horizontal)



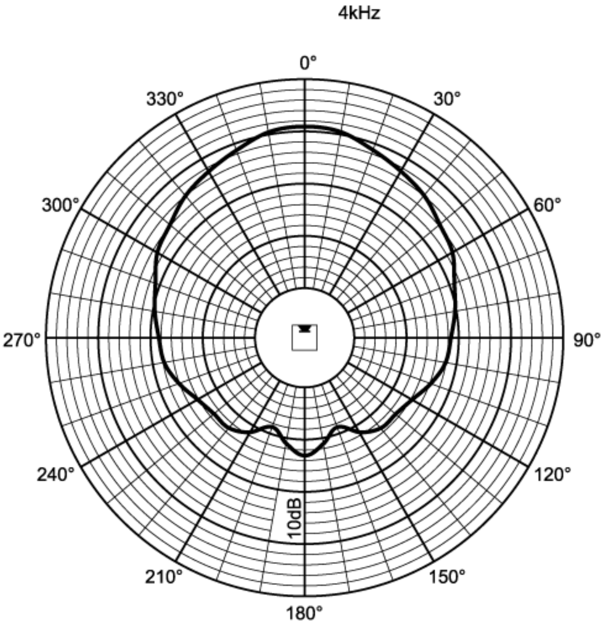
Polar diagram (vertical)



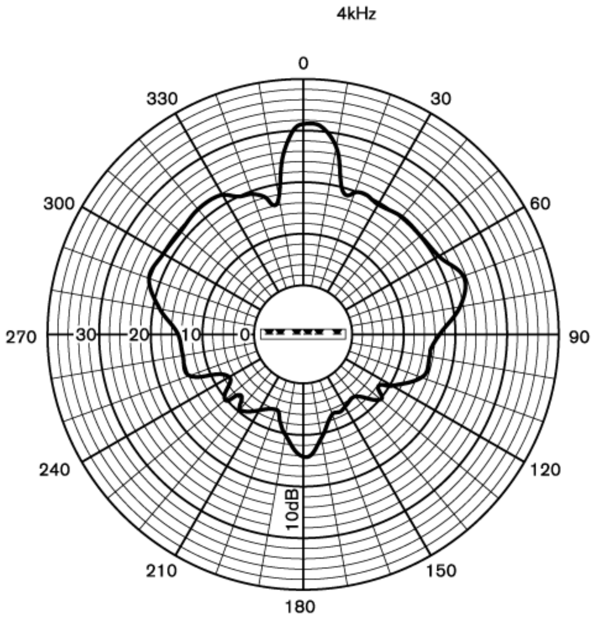
Polar diagram (vertical)



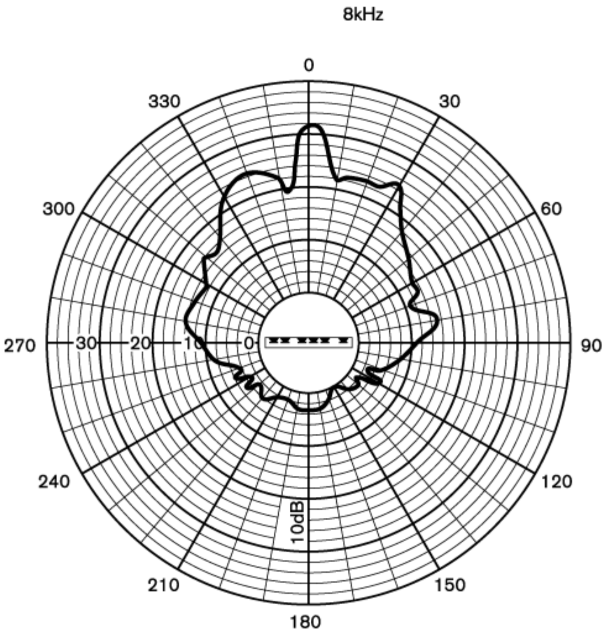
Polar diagram (horizontal)



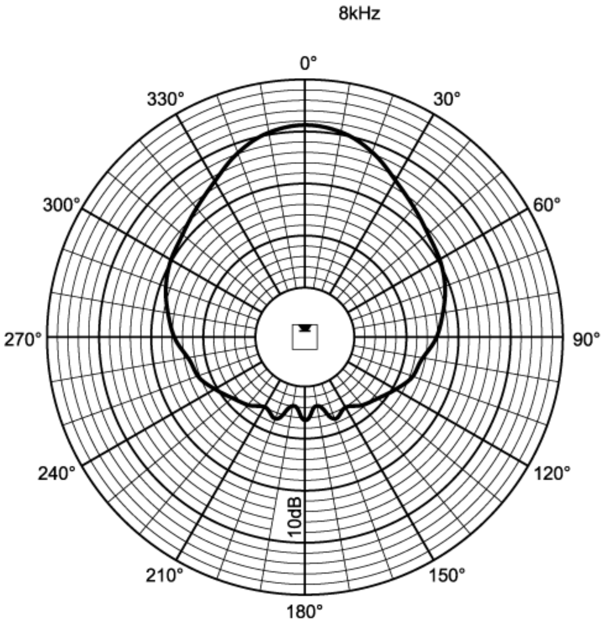
Polar diagram (horizontal)



Polar diagram (vertical)



Polar diagram (vertical)



Polar diagram (horizontal)

Parts included

Quantity	Components
1	LBC 3210/00 Line Array Loudspeaker
1	Wall mounting bracket
1	Attachment piece
1	Installation chart

Technical specifications

Electrical*

Maximum Power	90 W
Rated Power	60 / 30 / 15 W
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	115 dB / 97 dB (SPL)
Effective frequency range (-10 dB)	190 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	170° / 90°
vertical	55° / 18°
Rated input voltage	100 V
Rated impedance	167 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	1200 x 160 x 90 mm (47.24 x 6.3 x 3.54 in)
Weight	9 kg (19,8 lb)
Color	Light gray (matches RAL 9022)

Environmental

Operating temperature	-25 ºC to +55ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0254

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Line Array 60W
LBC 3210/00
Type B

Ordering information

LBC 3210/00 Line Array Indoor/Outdoor Loudspeaker
Line array loudspeaker for large indoor and outdoor environments, 60 W, extended listening area, aluminum extruded enclosure, light gray, EN54-24 certified, swivel wall-mounting bracket included.
Order number **LBC3210/00**

Accessories

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

Vari-directional Array

Features

- Unmatched sound quality and speech intelligibility
- Smart modular design, flush mountable
- Sophisticated beam configuration with EASE support
- Integrated ambient noise level sensor for AVC
- Available in gray or white

Many large modern and classical buildings, like passenger terminals and cathedrals, use hard reflective materials for floors, walls and ceilings. Due to their size and absence of absorbing materials the reverberation time is long and the amount of indirect reverberant sound compared to direct sound is high. This is disastrous for good speech intelligibility. Still it is very important to hear and understand the spoken message, whether it is a gate change announcement on an airport, a prayer in a house of worship or an evacuation message in case of an emergency. Here the Bosch Vari-directional Array offers a really smart and easy solution.

System overview

Notice

Where, in this datasheet, VARI-B, VARI-BH or VARI-E is written, the provided information is also valid for the white colored versions VARI-BL, VARI-BHL or VARI-EL unless stated otherwise.

The Bosch Vari-directional Array series is a comprehensive set of array loudspeakers to address people with clear intelligible messages in large reverberant spaces. These active units utilize integrated digital signal processing and high efficiency class-D amplifiers. Using a PC configuration program the array can be adapted to the venue where it is used and its sound output optimally aimed at the audience, creating a maximum direct to ambient sound ratio, for best intelligibility given the circumstances.

The modular concept allows for three different array lengths for small to large areas. Using separate array elements makes transport easy and upgrading to a longer array possible. An optional CobraNet module allows the array to be networked and to receive digital audio data via CobraNet and to monitor the operational status of the loudspeakers. Special built-in provisions make these arrays compliant to the world’s emergency sound system standards. The units are suited for both background music and speech.

Although these loudspeaker arrays are very sophisticated and offer unrivalled sound in difficult acoustical environments, the advanced configuration software makes setup quick and easy.

The units are available in gray aluminum RAL 9007 or signal white RAL 9003 finishing.

Functions

Advanced beam steering

The Bosch Vari-directional Array provides a very good direct to reverberant sound ratio. Firstly, it radiates more direct sound to the audience and secondly, it induces less ceiling reflections. The increased direct sound is also due to a lower rate of decay of the sound level with distance compared to a traditional loudspeaker acting as a point source.

Instead of mechanically aiming the complete loudspeaker column to the listeners, the Bosch Vari-directional Array is capable of virtually aiming the loudspeaker array by electronic means. It drives the loudspeakers of the array individually with differently delayed signals, virtually moving the loudspeakers. Now the array can be positioned vertically against a wall or even recessed into the wall. This is esthetically more pleasing and as a bonus also reduces disturbing incoherent reflections from the wall. Furthermore, the Bosch Vari-directional Array uses very advanced beam steering techniques to achieve a beam shape that provides an equal level for all frequencies in the range of interest at all listening positions. Only then, listeners will get a balanced sound.

Another important factor is the loudness of the signal, which should be almost the same for all listening positions, avoiding hot spots. To create an even sound level in a large area, the shape of the beam should be optimized to the listening plane (ear level). Solving these challenges requires that for every audio frequency in the range of interest the level of each individual loudspeaker should be carefully controlled. The Bosch Vari-directional Array performs this combination of frequency response and delay tailoring in the digital domain using a DSP and subsequent multi-channel amplification. Then a very consistent SPL from front to rear can be attained in the listening plane, with a minimum of side lobes.

But the Bosch arrays excel in two additional ways. In the first place it is able to deal with non-flat audience planes, for instance theaters and auditoriums. Secondly, it does not solely try to maximize the direct output to the listening plane, but also to minimize the output to unwanted areas. Due to physical limitations of a loudspeaker array every practical array will have side lobes. The configuration of the Vari-directional Array uses an advanced optimization algorithm that allows for minimization of the most harmful side-lobes, to achieve the best possible coverage combined with a maximum direct to reverberant ratio.

Easy installation and setup

The Bosch Vari-directional Array makes installation and configuration fairly easy for the installer and sound engineer.
The majority of the applications can be described in a rather straightforward way, where the configuration can be selected from a database of pre-optimized setups. Selection is quick and interactively by entering some key parameters of the room, the position of the array and the listening plane. The configuration program then shows graphically the realized direct SPL coverage.
The Vari Configuration Set includes the configuration software and a USB to RS485 converter to connect a PC's USB port to one or more (networked) Vari units, even across longer distances. Using the optional CobraNet module it is even possible to configure and monitor multiple units across an Ethernet network.

Modular approach

One-key design factor for a line array is its length. To enable a long throw, the array should be long. If the audience is closer to the array, it can be shorter. Because the array is modular, arrays of three different lengths are possible: 1.20, 2.40 or 3.60 m. It consists of a base unit as a minimum and one or two extension units. Each unit is only 1.20 m in length for easy transport. The base unit contains the controller, the DSP, the power supply and 8 power amplifiers and loudspeakers. The extension unit contains 8 loudspeakers with supporting power amplifiers. All necessary interconnections between base and extension units are established automatically when the units are invisibly bolted together. Signal and power cables enter the base unit through a hole on the rear side of the unit to the internal tamper resistant connection compartment, which is only accessible during installation.
The Bosch Vari-directional Array, with its full steel cabinet and grill, powder coated silver gray, blends easily with contemporary and traditional interiors and exteriors. Since front-cooling is applied, even flush mounting is possible.
Swivel-wall mounting brackets come with the units as standard.

CobraNet connectivity

The Bosch Vari-directional Array offers the possibility to equip the base unit with a small CobraNet module that allows the array to be connected to an Ethernet network via a CAT-5 cable connection. This way the audio signal to the array is delivered in a digital format to the array with low latency and a high degree of routing flexibility. Furthermore the array can be configured via Ethernet, its operation can be supervised and logged.
Use of standard Ethernet wiring reduces costs. CobraNet technology allows for the co-existence of audio and data traffic over existing standard Ethernet infrastructure resulting in substantial savings in design and installation. CobraNet is a technology that is owned by Cirrus Logic and is used by many professional audio manufacturers as the technology of choice in digital audio networking.

Emergency sound

Emergency warning and information systems are very much a part of life these days. They are mandatory for most commercial buildings and public spaces and must comply with very specific standards, such as IEC60849, BS5839-8 and EN54-16. The system elements of the Bosch Vari-directional Array have been designed for compliancy to these standards, right from the start. Therefore the array cannot only be used for business announcements and background music, but also as part of an emergency sound system, e.g. in combination with the Bosch Praesideo system, one of the most sophisticated emergency sound systems available, with thousands of installations worldwide. For instance, the Vari-directional Array provides a pilot tone detection circuit at the input for surveillance of the audio connection, internal supervision of operation, connection for a 24 V (battery) backup power supply, a fault output relay and a fault log with network access.
The Bosch Vari-directional Array is a perfect loudspeaker system for making voice alarms in case of emergencies, when clear, intelligible and unambiguous announcements are needed most.

Automatic Volume Control (AVC)

In certain environments, such as sports stadiums and passenger terminals, the background noise level fluctuates constantly. This may seriously affect the intelligibility of spoken messages. The Bosch Vari-directional Array has a built-in noise level sensor that can be configured to control the gain of the amplifiers to constantly adjust the sound level. This automatic volume control (AVC) keeps the audio level comfortably above the background noise level for improved intelligibility without becoming unnecessarily loud.

Sound-processing

Large halls or platforms may need multiple arrays at different locations. The audio output of these arrays should be time-aligned to avoid echoes at the audience position. The Bosch Vari-directional Array provides a built-in high resolution delay adjustment.
An 8-section parametric equalizer is present for adjustment of the array to the acoustical environment, e.g. to increase the margin before acoustic feedback occurs. Separate 4-section equalizers at the inputs enable separate frequency responses for e.g. background music and announcements.

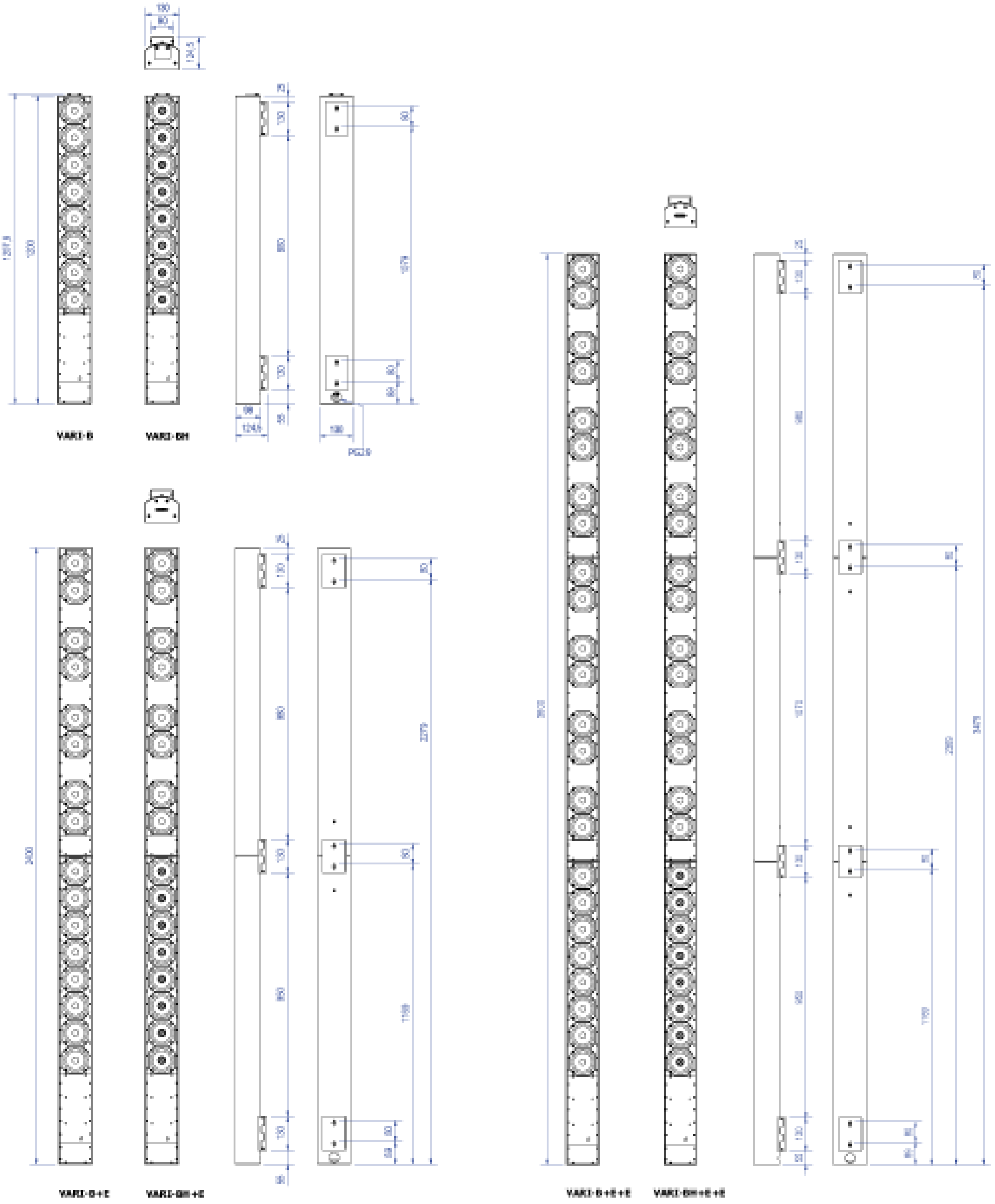
Certifications and approvals

Safety	according to IEC 60065: 2001 + A1: 2005
Immunity	according to EN 55103-2: 2009 according to FCC-47 part 15B
Emissions	according to EN 55103-1: 2009 according to EN 50130-4: 2006 according to EN 50121-4: 2006 according to EN 61000-3-2: 2006 + A1: 2009 + A2: 2009
Wind-force	according to NEN 6702: 2007 + A1: 2008, Bft 11
Water and dust protection	according to EN60529 IP54
Approval	CE

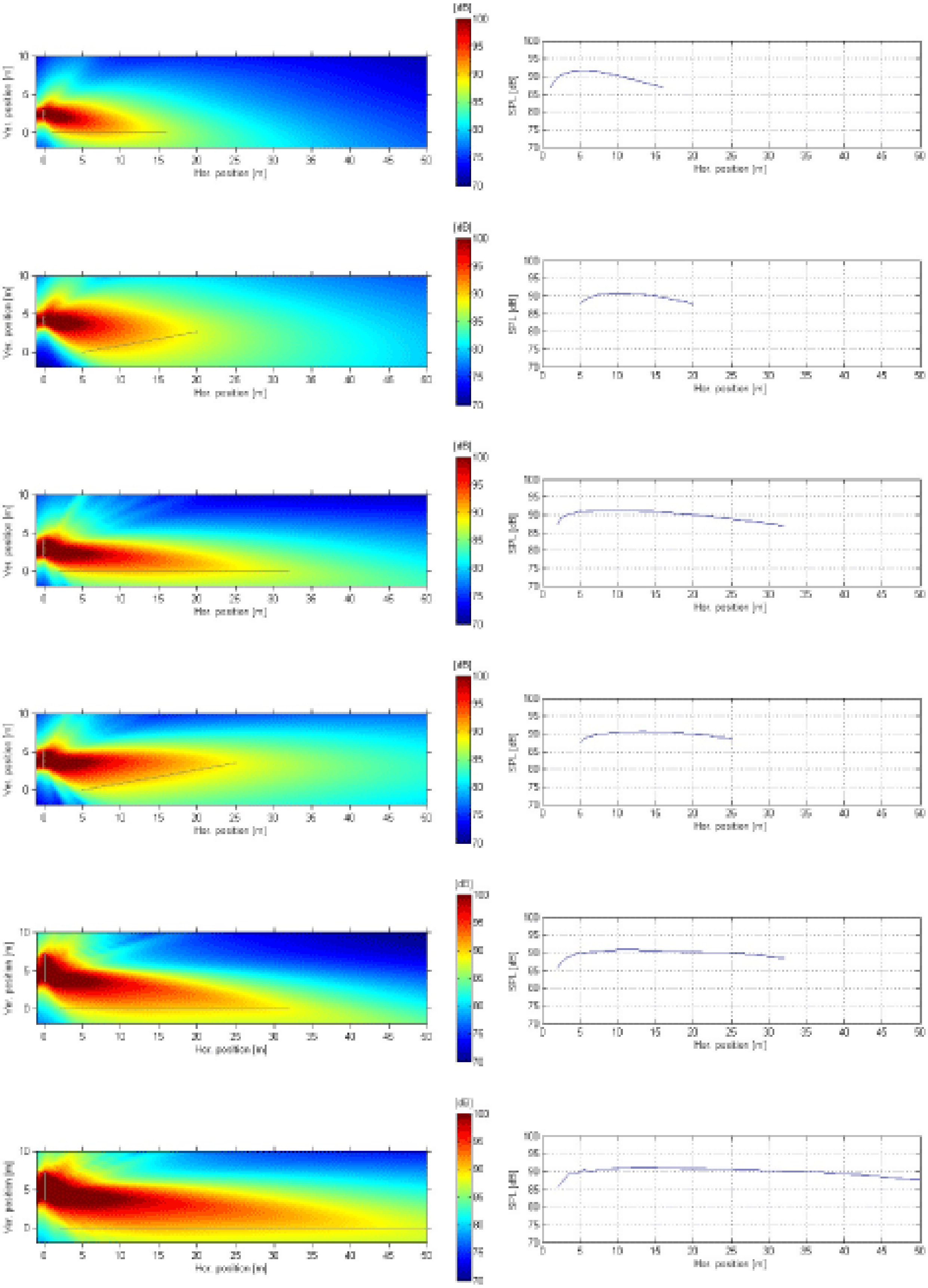
Region	**Certification**
Europe	CE

Installation/configuration notes

Array moniker	Array composition	Elements used		
		LA3-VARI-B	LA3-VARI-BH	LA3-VARI-E
Vari-array-B1	VARI-B	1		
Vari-array-B2	VARI-B+E	1		1
Vari-array-B3	VARI-B+E+E	1		2
Vari-array-H1	VARI-BH		1	
Vari-array_H2	VARI-BH+E		1	1
Vari-array-H3	VARI-BH+E+E		1	2


130
80
124.5
1257.9
1200
880
1079
98
124.5
130
PG29
2400
VARI-B
VARI-BH
VARI-B+E
VARI-BH+E
VARI-B+E+E
VARI-BH+E+E

Mechanical dimensions (mm)



Examples of vertical beam cross sections and SPL at ear level (2 x VARI-B, 2 x VARI-B+E, 2 x VARI-B+E+E)

Parts included

Quantity	Components

	LA3-VARI-B
1	Vari Base Unit
2	Wall bracket
1	Right angle IEC mains connector C13
1	Cover plate
1	Connection set (Phoenix)
1	Grille removal tool
1	Installation Manual

	LA3-VARI-BH
1	Vari Base Unit HF
2	Wall bracket
1	Right angle IEC mains connector C13
1	Cover plate
1	Connection set (Phoenix)
1	Grille removal tool
1	Installation Manual

Quantity	Components
	LA3-VARI-E
1	Vari Extension Unit
1	Wall bracket
2	Fixing bolts

	LA3-VARI-CS
1	CD (software and documentation)
1	USB to RS485 converter
1	USB cable
1	RS485 cable

	LA3-VARI-CM
1	CobraNet module
2	Fixing screws
1	CAT-5 cable

Technical specifications

Acoustical[1]

Frequency range[2]	
VARI-B	130 Hz to 10 kHz (±3 dB)
VARI-BH	130 Hz to 18 kHz (±3 dB)

Max SPL[3]	Continuous / peak
VARI-B	90 / 93 dB SPL (A-weighed at 20 m)
VARI-B+E	90 / 93 dB SPL (A-weighed at 32 m)
VARI-B+E+E	88 / 91 dB SPL (A-weighed at 50 m)
VARI-BH	89 / 92 dB SPL (A-weighed at 20 m)
VARI-BH+E	89 / 92 dB SPL (A-weighed at 32 m)
VARI-BH+E+E	87 / 90 dB SPL (A-weighed at 50 m)

Coverage	
Horizontal (fixed)[4]	130° (-6 dB, avg. 1 to 4 kHz)
Vertical (adjustable)[5]	Software configurable
Maximum throw:	
VARI-B(H)	20 m
VARI-B(H)+E	32 m
VARI-B(H)+E+E	50 m

Transducers	
VARI-B	4” Full Range (8 x 1 driver)
VARI-BH	4” Coaxial (8 x 1 driver)
VARI-E	4” Full Range (4 x 2 drivers)

Electrical

Input Line (2x)	
Input level nominal	0 dBV rms
Input level maximum	+20 dBV peak
Type	Transformer balanced
Impedance (balanced)	7.8 kohm at 1 kHz
Input 100 V (2x)	
Input level nominal	+40 dBV rms
Type	Transformer balanced (floating input)
Impedance (balanced)	1 Mohm at 1 kHz
Power Amplifiers	
Power	
VARI-B(H)	8 x 15 W (class-D full bridge)
VARI-E	4 x 25 W (class-D full bridge)
Protection	Thermal shutdown
	Current limiting
Dynamic range[6]	>105 dB

PSU	
Mains voltage	100 to 120 V / 200 to 240 V (auto switching)
Power consumption	@ Mains / 24 Vdc

Power save	
VARI-B(H)	13 / 4.5 W
VARI-B(H)+E	17 / 7 W
VARI-B(H)+E+E	19 / 9 W
Idle	
VARI-B(H)	18 / 8.5 W
VARI-B(H)+E	23 / 13 W
VARI-B(H)+E+E	28 / 17 W
Max. (Noise, CF 6 dB)	
VARI-B(H)	60 / 36 W
VARI-B(H)+E	97 / 75 W
VARI-B(H)+E+E	124 / 100 W
Power factor	According to EN61000-3-2, class A
Mains inrush current	<70 A (at 230 V)
Protection	Thermal shutdown
	Current limiting
	Under voltage lock-out
Signal processing[5]	
DSP	32-bit floating point, 900 Mflops
ADC / DAC	24-bits S-D, 128 x oversampling
Sample rate	48 kHz
Functions	Pre-delay (max. 21 s)
	Input-delay (max. 2 x 10 s / 4 x 5 s)
	Equalizer and compensation filtering
	Compressor
	Volume
	AVC
Control	
Network interface	RS-485 full duplex, auto-switching 115k2, 57k6, 38k4, 19k2 baud, optically isolated
Max. number of units[7]	126
Surveillance	General status
	Amplifier and load monitoring
	External pilot-tone detection (20 kHz to 30 kHz, min. level -22 dBV)
	Built-in ambient noise sensing microphone
	Thermal overload protection
Failure relay	Maskable conditions
Contact 1	No failure = closed / Failure = open
Rating	Max. 24 V, 100 mA
Contact 2	No failure = 10 k ohm / Failure = 20 k ohm
Control voltage input	5 to 24 Vdc, optically isolated
CobraNet	
Interface	RJ-45, Ethernet 100 Mbps
Word length	16-/20-/24-bit (set by transmitter)
Sample rate	48 kHz
Additional latency	1.33/2.67/5.33 ms (set by transmitter)

Mechanical

Dimensions (H x W x D)	
VARI-B(H)	1200 x 130 x 98 mm (47.2 x 5.1 x 3.8 in)
VARI-B(H)+E	2400 x 130 x 98 mm (94.5 x 5.1 x 3.8 in)
VARI-B(H)+E+E	3600 x 130 x 98 mm (141.7 x 5.1 x 3.8 in)
Bracket	27 mm (1.1 in) additional depth, flat mounted
VARI-CM	100 x 50 x 23 mm (3.9 x 2.0 x 0.9 in)
Weight	
VARI-B(H)	13.0 kg (28.7 lbs)
VARI-B(H)+E	24.7 kg (54.5 lbs)
VARI-B(H)+E+E	36.4 kg (80.3 lbs)
Color	
Enclosure: VARI-B(H) and -E VARI-B(H)L and -EL	 RAL9007 (gray aluminum) RAL9003 (signal white)
Grill: VARI-B(H) and -E VARI-B(H)L and -EL	 RAL9006 (white aluminum) RAL9003 (signal white)

Environmental

Operating temperature	-25 °C to 55 °C (-13 °F to 131 °F)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95 %

Notes:

1. Measured outside under semi-anechoic ‘full-space’ conditions with typical filter and delay settings unless stated otherwise.
2. Measured on-axis. The frequency response of the complete array is depending on the actual signal processing parameters and air absorption (at larger distances). A typical bandwidth is specified for the complete array under 'full-space' radiation conditions.

3. Levels are valid for pink noise (100 Hz to 20 kHz bandwidth) with a crest factor of 3 dB, default EQ and minimum opening angle setting. 'Continuous' is the RMS level, 'Peak' is the absolute peak level, both determined at the onset of the output limiter. SPL values will vary depending upon opening angle.
4. For this measurement the signals at all power amplifier outputs are summed together.
5. Additional processing capabilities available.
6. Measured as the A-weighed difference (in dB) between the maximum rms level (with pink noise input signal) and the noise output (with no input signal present).
7. Maximum number that can be connected to one RS-485 subnet, multiple subnets can be controlled by one host PC.

Ordering information

LA3-VARI-B Vari Base Unit (gray)
Active vari-directional array loudspeaker (gray).
Order number **LA3-VARI-B**

LA3-VARI-BH Vari Base Unit HF (gray)
Active vari-directional array loudspeaker (gray) with co-axial drivers for improved high frequency response.
Order number **LA3-VARI-BH**

LA3-VARI-E Vari Extension Unit (gray)
Active vari-directional array extension (gray), to be used with a base unit to increase the coverage distance. A maximum of two extension units can be used with a base unit.
Order number **LA3-VARI-E**

Accessories

LA3-VARI-CM Vari CobraNet Module
CobraNet module for connecting the vari-directional array to a CobraNet network. The module must be mounted inside the base unit.
Order number **LA3-VARI-CM**

LA3-VARI-CS Vari Configuration set
Configuration software for the vari-directional array with USB to RS485 converter for connection to the PC USB port.
Order number **LA3-VARI-CS**

LBC 3950/01 Ceiling Loudspeaker

Features

- Compact yet powerful
- Very wide opening angle
- Modern unobtrusive styling
- Installation friendly
- Splash-waterproof

The LBC 3950/01 is a compact, 6 W loudspeaker with a circular plastic grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

Functions

The LBC 3950/01 has a circular pattern plastic grille with a plastic surround, finished in an attractive off-white RAL color. The unobtrusive styling of this loudspeaker complements modern interior lighting.
The loudspeaker feature a very wide opening angle, which means fewer units are required to cover a given area. The wide frequency range means better speech and music reproduction. The unit is supplied with a 100 V matching transformer with taps on the primary winding for full-power, half-power, quarter-power and eighth-power radiation.
The loudspeaker (with special treated paper cone), is IP 4 water protected from the front and can be applied in humidity environments for example bathrooms, saunas, atriums and swimming pool areas.

Certifications and approvals

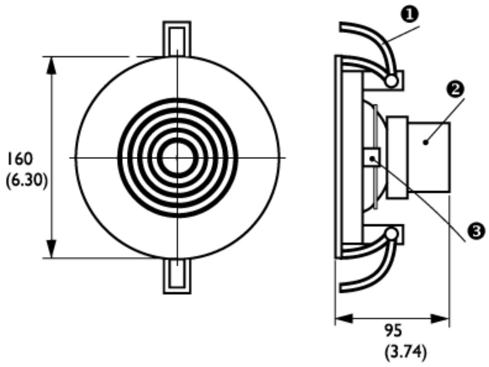
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0).

Safety	acc. to EN 60065
Water protected	acc. to EN 60529, IPx4

Region	Certification	
Europe	CE	Declaration of Conformity

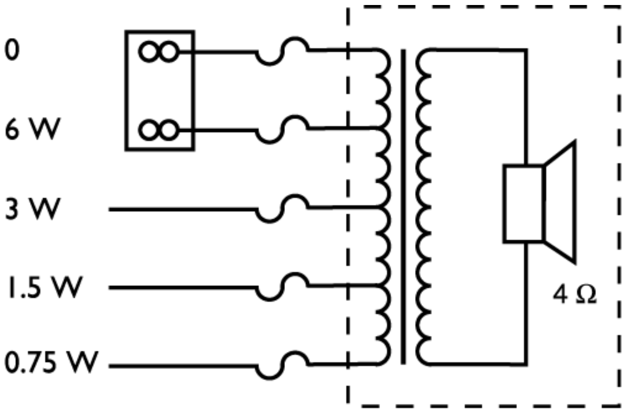
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.

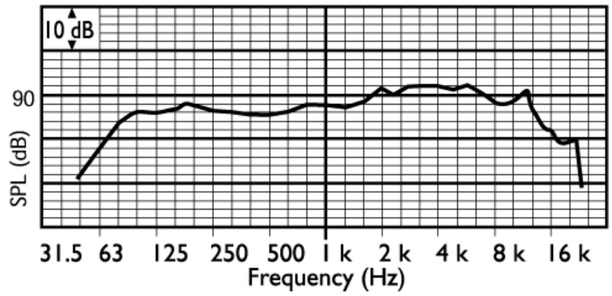


01	Clamp
02	Matching transformer
03	Terminal block

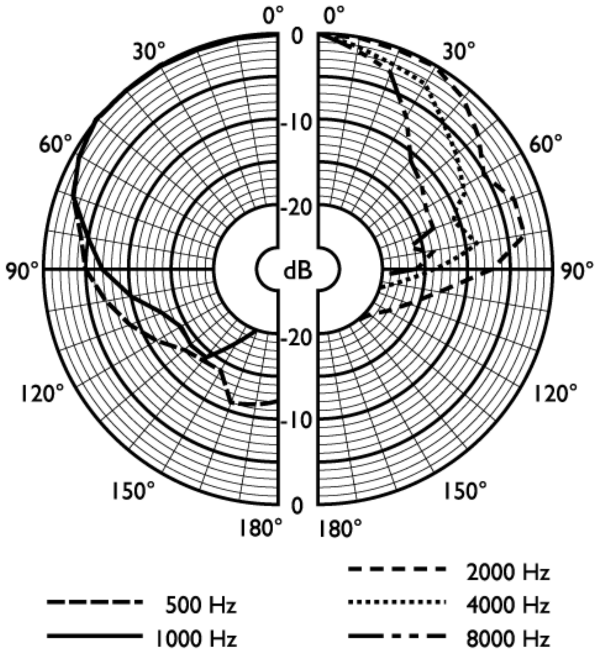
Dimensions in mm (in)



Circuit diagram



Frequency response



Polar diagram

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	88	86	88	89	91	89
SPL max.	95	96	94	96	97	99	97
Q-factor	4	5.6	2.6	3	3.8	8.1	15
Efficiency	0.16	0.14	0.19	0.27	0.26	0.19	0.06
H. angle	180	180	180	170	165	90	55
V. angle	180	180	180	170	165	90	55

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 90°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 in)
Maximum depth	95 mm (3.74 in)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 in)
Mounting cut-out	145 mm (5.71 in)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3950/01 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular ABS grille, integral clips for easy mounting, push terminal block, white RAL 9010.
Order number **LBC3950/01**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3951/11 Ceiling Loudspeaker

Features

- Compact yet powerful
- Very wide opening angle
- Modern unobtrusive styling
- Installation friendly
- Splash - waterproof

The LBC 3951/11 is a compact, 6 W loudspeaker with a perforated metal grille. It has excellent audio performance and is easy to install with its integral mounting clips. The loudspeaker is IPx4 water protected from the front so it can be installed in humid environments.

Functions

The LBC 3951/11 has a perforated metal grille with a plastic surround, finished in an attractive off-white RAL color. The unobtrusive styling of this loudspeaker complements today's interior lighting.
The loudspeaker feature a very wide opening angle, which means fewer units are required to cover a given area. The wide frequency range means better speech and music reproduction. The unit is supplied with a 100 V matching transformer with taps on the primary winding for full-power, half-power, quarter-power and eighth-power radiation.
The loudspeaker (with special treated paper cone), is IPx4 water protected from the front and can be applied in humidity environments for example bathrooms, saunas, atriums and swimming pool areas.

Certifications and approvals

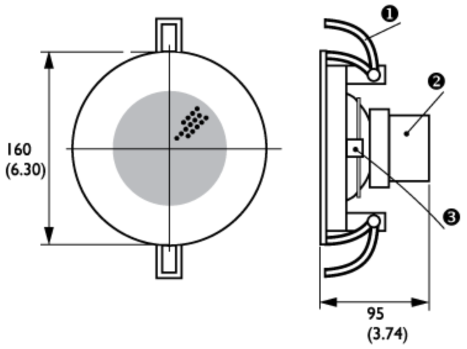
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0).
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water protected	acc. to EN 60529, IPx4

Region	Certification
Europe	CE

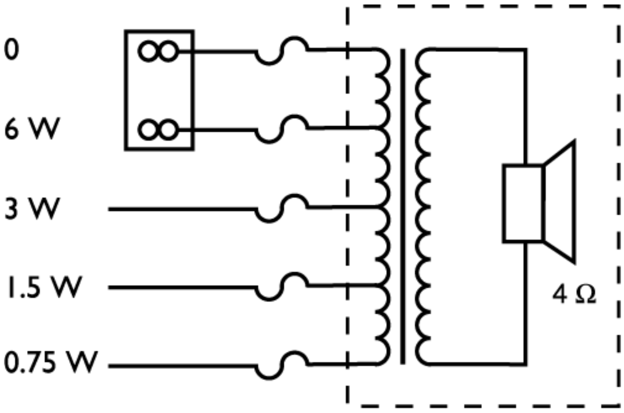
Installation/configuration notes

Installation is easy with integral clips that securely hold the ceiling loudspeaker in its cut-out. Ceilings from 9 to 25 mm thick can be accommodated. A template is also provided for accurately marking the cutout in ceiling panels. Wiring is via a connection block with push-type terminals, making installation possible without using any special tools. The terminal blocks have provision for loop-through wiring. The transformer is delivered wired for 6 W rated output power, but can easily be changed for other connections using the color-coded wires and terminal block.

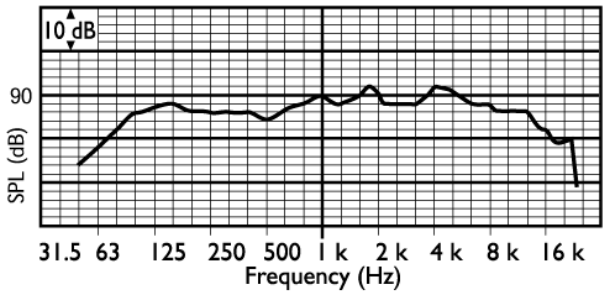


01	Clamp
02	Matching transformer
03	Terminal block

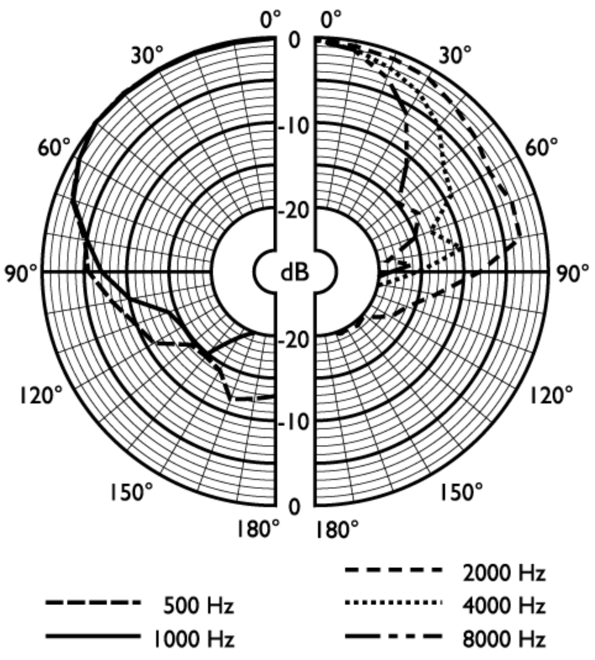
Dimensions in mm (inch)



Circuit diagram



Frequency response



Polar diagram

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	87	87	85	88	89	89	86
SPL max.	95	95	93	96	97	97	94
Q-factor	4	5.6	2.2	3.2	4.6	10.7	19
Efficiency	0.16	0.11	0.18	0.25	0.22	0.09	0.03
H. angle	180	180	180	170	160	80	60
V. angle	180	180	180	170	160	80	60

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	99 dB / 91 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	170° / 80°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	160 mm (6.30 inch)
Maximum depth	95 mm (3.74 inch)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 inch)
Mounting cut-out	145 mm (5.71 inch)
Speaker diameter	101.6 mm (4 in)
Weight	690 g (1.52 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3951/11 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille with an ABS surround, integral clips for easy mounting, push terminal block, white RAL 9010.
Order number **LBC3951/11**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LHM 0606/xx Ceiling Loudspeaker

Features

- Suitable for speech and music reproduction
- Flush-mounting in ceiling cavity
- Easy to install
- Simple power setting
- Unobtrusive in virtually all interiors

The LHM 0606/xx is a general purpose, 6 W, cost-effective ceiling loudspeaker. The /00 version is screw mounted and the /10 version is clamp mounted into the ceiling. An optional fire dome LBC 3080/01 is available.

Functions

An economic flushing-mounting ceiling loudspeaker is available for general purpose applications. This full range loudspeaker is suitable for both speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.
The speaker assembly consists of a single-piece, 6W dual cone loudspeaker and frame, with a 100 V, matching transformer mounted on the back. A circular metal grille is an integrated part of the front. The appearance and neutral white color has been selected to be unobtrusive in virtually all interiors.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065

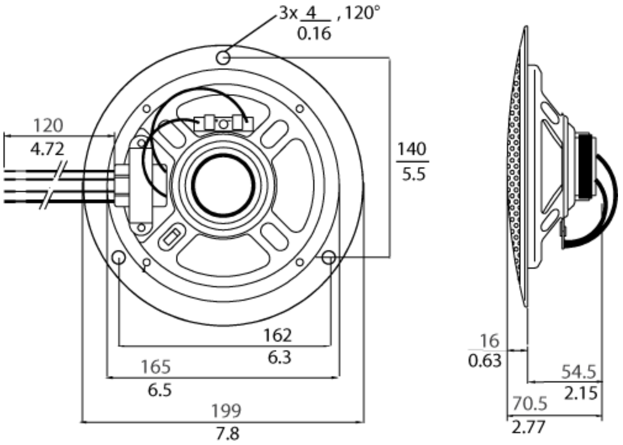
Installation/configuration notes

Mounting

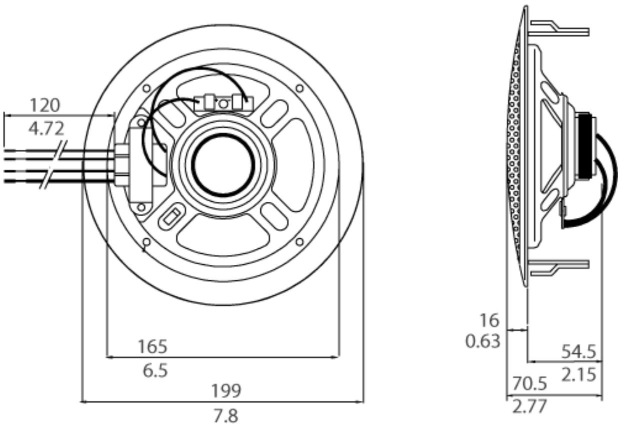
The assembly is simply and quickly installed into a hole in the ceiling cavity. The /00 version is secured with the three white screws (supplied). The /10 version is secured by two integral spring-loaded ceiling locking clamps. A circular template for marking a 165 mm diameter hole is included with the loudspeaker.
Three wires on the matching transformer (primary) provide for selection of nominal full-power, half-power or quarter-power radiation.

Fire dome

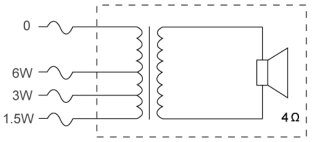
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the caving via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3080/01). This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws, supplied as standard. There are four knock-out holes; two (2) for rubber grommets (supplied) and two (2) for cable glands. (PG13).



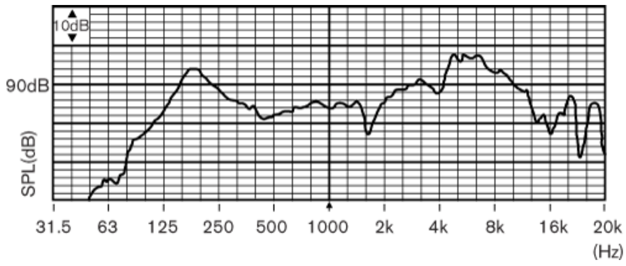
LHM 0606/00 Dimensions in mm / inch



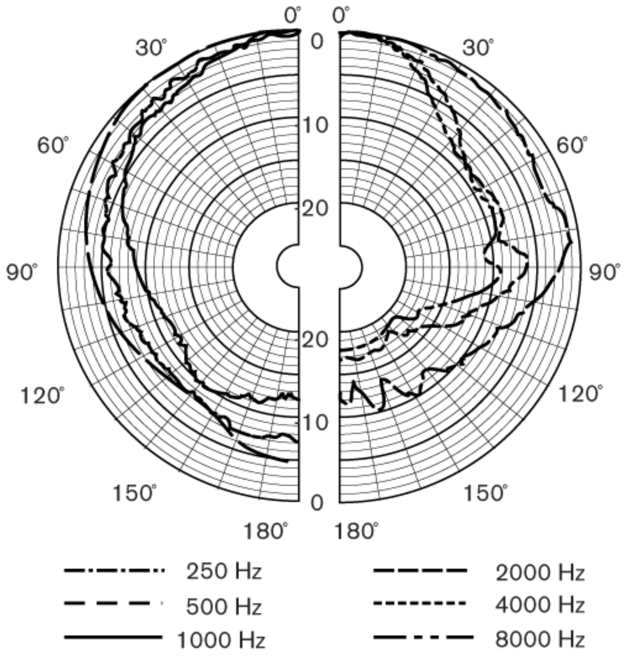
LHM 0606/10 Dimensions in mm / inch



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity *

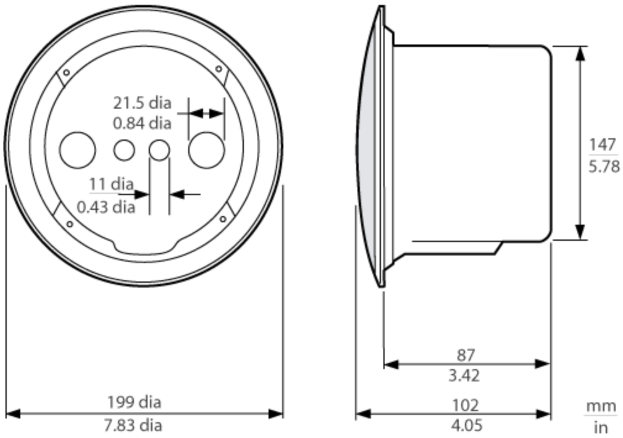
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	91.3	-	-
250 Hz	85.3	-	-
500 Hz	85.3	-	-
1000 Hz	85.7	-	-
2000 Hz	90.5		
4000 Hz	98.2	-	-
8000 Hz	91.1	-	-
A-weighted	-	90.4	97.1
Lin-weighted	-	90.4	97.6

Octave band opening angles

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	122	122	
4000 Hz	51	51	
8000 Hz	42	42	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the valuals are in dBSPL)

LBC 3080/01 Fire Dome (optional)



LHM 0606/xx + LBC 3080/01 Fire dome assembly dimensions in mm

Technical specifications

Electrical

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	94 dB / 86 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	106 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	80 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	175° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connection	Flying leads

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	70.5 mm (2.8 in)
Mounting cut-out	165 + 5 mm (6.5 + 0.20 in)
Speaker diameter	152.4 mm (6 in)
Weight	620 g (1.37 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LHM 0606/00 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 3 (white) screws (supplied), white RAL 9010.
Order number **LHM0606/00**

LHM 0606/10 Ceiling Loudspeaker
Ceiling loudspeaker 6 W, circular metal grille, ceiling-mounted with 2 spring clamps, white RAL 9010.
Order number **LHM0606/10**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3080/01 Fire Dome
Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.
Order number **LBC 3080/01**

LBC 3086/41 Ceiling Loudspeaker

Features

- Suitable for speech and music reproduction
- Easy to install
- Optional certified fire dome
- EN 54-24 certified

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3086/41 is designed for use in voice alarm systems.

Functions

The loudspeaker unit is a 6 W, dual-cone loudspeaker with an integrated circular metal grille. A 100 V matching transformer is mounted on the back. The appearance and neutral white RAL color have been selected to be unobtrusive in virtually all interiors.
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has ceramic terminal blocks, thermal fuse and heat-resistant, high-temperature wiring. It can also be fitted with an optional fire-dome to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
* Emergency	acc. to BS 5839-8 /* EN 54-24 / EN 60849
* Water and dust protection	acc. to EN 60529-IP32

Notice

* only in combination with the LBC 3081/02 Fire Dome

Region	Certification
Europe	CE
	CE
	CPD
Poland	CNBOP

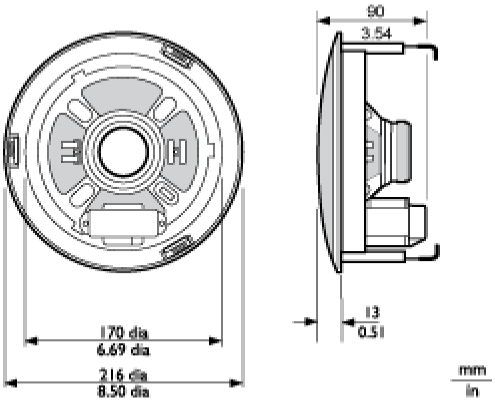
Installation/configuration notes

Installation
The assembly is quickly installed into a hole in the ceiling cavity. A separate mounting ring, secured by three integral spring-loaded ceiling locking clamps (for ceilings and wall boards from 9 to 25 mm thick) holds it in place. The clamps are provided with protective rubbers to avoid damaging soft ceiling material. A circular template for marking a 196 mm (7.7 in) diameter hole is included with the loudspeaker. The loudspeaker unit is held in the mounting ring with a bayonet fitting.

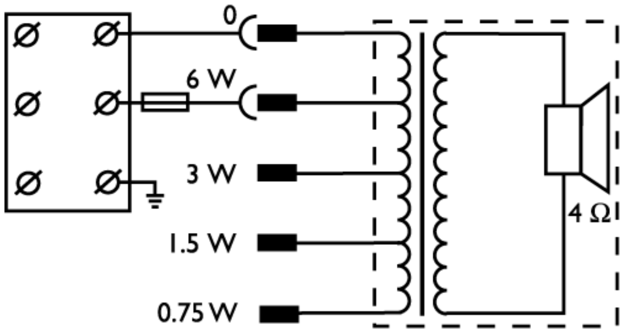
Terminal Block
The unit has a three-way terminal block with screw connections suitable for loop-through wiring. Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (i.e. in 3 dB steps).

LBC 3081/02 Fire Dome Assembly
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the caving via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3081/02).

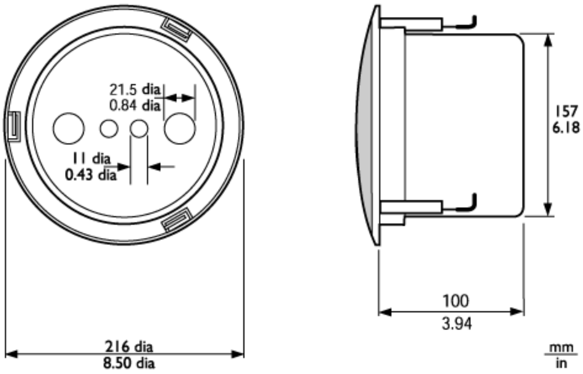
LBC 3086/41 with LBC 3081/02 fire dome assembly


90
3.54
13
0.51
170 dia
6.69 dia
216 dia
8.50 dia
mm
in

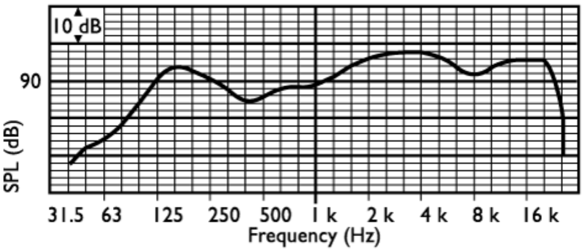
Dimensions in mm (in)


0
6 W
3 W
1.5 W
0.75 W
4 Ω

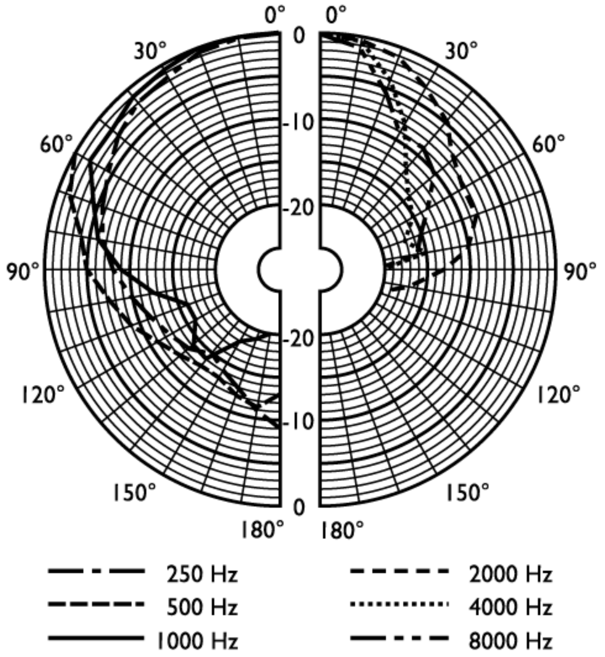
Circuit diagram


21.5 dia
0.84 dia
11 dia
0.43 dia
216 dia
8.50 dia
157
6.18
100
3.94
mm
in

LBC 3086/41 with LBC 3081/02 fire dome assembly dimensions in mm (in)



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	92	90	85	90	96	98	92
SPL max.	100	98	93	98	104	106	100
Q-factor	4.8	4.4	2.5	3.7	8.3	20	21
Efficiency	0.42	0.29	0.16	0.34	0.6	0.4	0.1
H. angle	160	160	180	160	90	50	40
V. angle	160	160	180	160	90	50	40

Acoustical performance specified per octave

Parts included

Quantity	Components
1	LBC 3086/41 Ceiling Loudspeaker
1	196 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	98 dB / 90 dB (SPL)
Effective frequency range (-10 dB)	90 Hz to 20 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	180° / 50°

Rated voltage	100 V
Rated impedance	1667 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	216 mm (8.5 in)
Maximum depth	90 mm (3.54 in)
Ceiling thickness	9 to 25 mm (0.35 to 0.98 in)
Mounting cut-out	196 mm (7.7 in)
Weight	1.3 kg (2.86 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

CE
1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
10
1438-CPD-0193

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling Loudspeaker 6 W with metal Fire-dome
LBC3086/41 and LBC3081/02
Type A

Ordering information

LBC 3086/41 Ceiling Loudspeaker
Ceiling loudspeaker, 6 W, integrated circular metal grille, mounting-ring with three spring-loaded ceiling clamps and bayonet loudspeaker mounting, white RAL 9010.
Order number **LBC3086/41**

Accessories

LBC 3081/02 Fire Dome
Metal fire dome for LBC 3086/41 ceiling loudspeaker, flame red RAL 3000.
Order number **LBC3081/02**

LBC 3087/41 Ceiling Loudspeaker

Features

- Suitable for speech and music reproduction
- Screw mounting
- Simple power setting
- EN 54-24 certified

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3087/41 is designed for use in voice alarm systems and is compliant with British standard BS 5839-8.

Functions

The LBC 3087/41 is an economic flush-mounting ceiling loudspeaker for general-purpose applications. It is a full-range loudspeaker for speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.
The LBC 3087/41 has a single-piece, 6 W, dual-cone loudspeaker. A 100 V matching transformer is mounted on the back of the frame. The circular metal grille is an integrated part of the front, and is finished in an unobtrusive white color (RAL 9010)
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has ceramic terminal blocks, thermal fuse and heat-resistant, high-temperature wiring. It can also be fitted with an optional fire-dome to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8 / EN 60849/ EN 54-24*
Ball-proof	acc. to DIN VDE 0710 part 13
* Water and dust protection	acc. to EN 60529-IP32

Notice
* Only in combination with the LBC 3080/01 Fire Dome

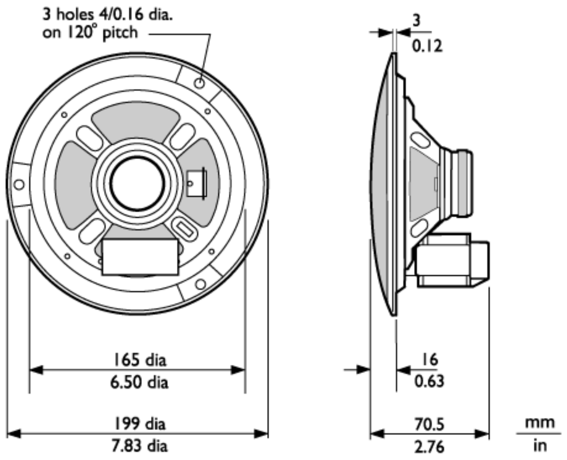
Region	Certification
Europe	CE
	CPD
Poland	CNBOP
	CNBOP

Installation/configuration notes

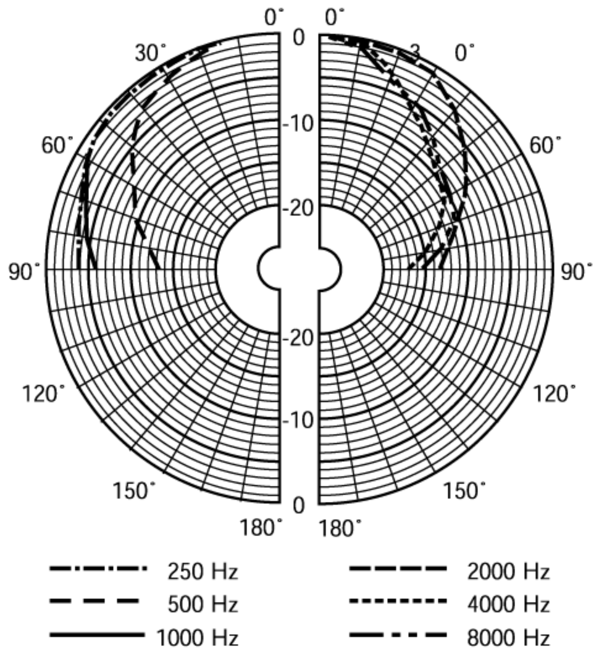
Installation
The assembly is quickly installed into a hole in the ceiling cavity and secured with three white-colored screws (supplied). A circular template for marking a 165 mm (6.5 in) diameter hole is included with the loudspeaker.

Terminal Block
The unit has a three-way terminal block with screw connections suitable for loop-through wiring. Four primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power or eighth power radiation (i.e. in 3 dB steps).

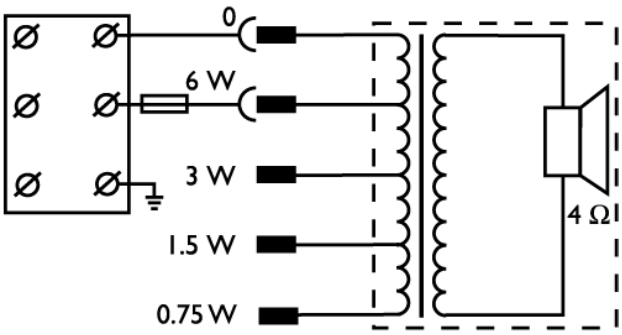
Fire dome
During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the caving via the loudspeaker, the ceiling loudspeaker can be fitted with a protective steel fire dome (LBC 3080/01). This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws, supplied as standard.
There are four knock-out holes; two (2) for rubber grommets (supplied) and two (2) for cable glands. (PG13).


3 holes 4/0.16 dia.
on 120° pitch
165 dia
6.50 dia
199 dia
7.83 dia
3
0.12
16
0.63
70.5
2.76
mm
in

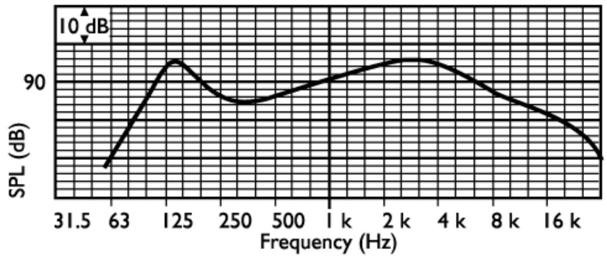
Dimensions in mm (in)



Polar diagram (measured with pink noise)


0
6 W
3 W
1.5 W
0.75 W
4 Ω

Circuit diagram



Frequency response

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	86	89	94	94	86
SPL max.	102	99	94	97	102	102	94
Q-factor	3	4.7	2.3	4.5	6.6	11	17
Efficiency	1.1	0.4	0.2	0.22	0.48	0.3	0.03
H. angle	170	150	180	160	100	65	55
V. angle	170	150	180	160	100	65	55

Acoustical performance specified per octave

Parts included

Quantity	Component
1	LBC 3087/41 Ceiling Loudspeaker
3	White colored screws
1	165 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	97 dB / 89 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	102 dB / 94 dB (SPL)
Effective frequency range (-10 dB)	80 Hz to 18 kHz

Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 65°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	70.5 mm (2.8 in)
Mounting cut-out	165 + 5 mm (6.5 + 0.20 in)
Speaker diameter	152.4 mm (6 in)
Weight	720 g (1.6 lb)
Color	White (RAL 9010)
Magnet weight	80 g (2.8 oz)

Environmental

Operating temperature	-25 to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
10
1438-CPD-0335

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling Loudspeaker 6 W and accessories
LBC3087/41 and LBC3080/01
Type A

Ordering information

LBC 3087/41 Ceiling Loudspeaker
Ceiling loudspeaker, 6 W, integrated circular metal grille, screw mounted with 3 white screws (included), white RAL 9010.
Order number **LBC3087/41**

Accessories

LBC 3080/01 Fire Dome
Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.
Order number **LBC 3080/01**

LBC 3090/01 Ceiling Loudspeaker

Features

- Suitable for speech and music reproduction
- Increased sensitivity
- Flush-mounting in ceiling cavity
- Easy to install
- Protective dust cover

The LBC 3090/01 is an economic flush-mounting ceiling loudspeaker for general purpose applications. It is a full range loudspeaker for speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.

Functions

The LBC 3090/01 has a single-piece, 6 W dual cone loudspeaker. A 100 V matching transformer is mounted behind the front panel assembly. The moulded plastic front panel is mounted onto the loudspeaker's metal frame, and a dust cover protects the rear. The appearance and colour are unobtrusive in any interior.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94V0).

Safety	acc. to EN 60065

Region	Certification
Europe	CE

Installation/configuration notes

Installation

Installation is both quick and easy, as the unit(s) have two built-in spring-loaded locking clamps that secure them into holes in the ceiling (for suspended ceilings and wall boards from 9 to 25 mm thick). Alternatively, they can be fixed with four screws (using pre-drilled holes) in ceiling or wall panels less than 9 mm thick. A circular template for marking a 182 mm (7.1 in) diameter hole is included with the loudspeaker.

Terminal Block

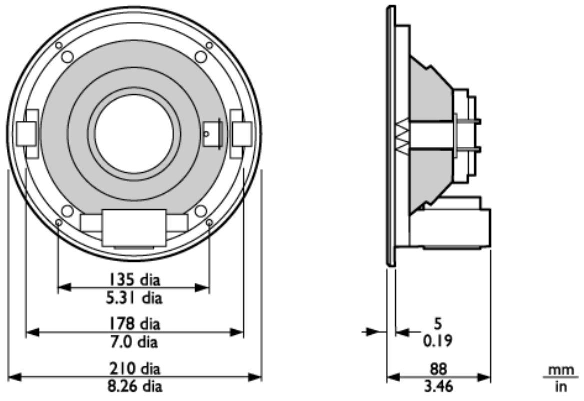
The unit has a two-way terminal block with push connections suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full- power, half-power or quarter-power radiation (i.e. in 3 dB steps).

LBC 3091/01 Surface Mounting Box

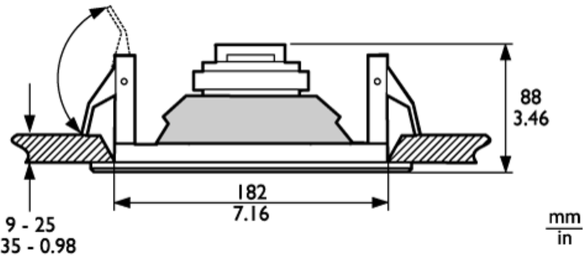
For mounting onto the surface of a wall or ceiling, the color-matched surface mounting box LBC 3091/01 is available.

LBC 3080/01 Fire Dome

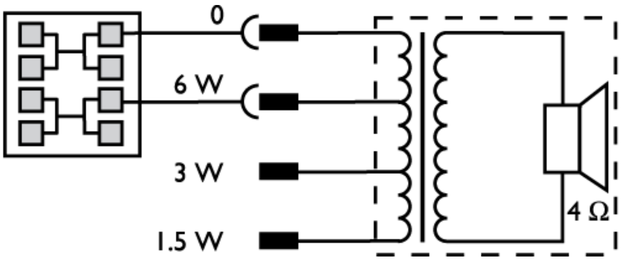
During a fire, the ceiling cavity can allow fire or smoke to spread throughout a building. To inhibit fire entering the cavity via the ceiling loudspeaker, it can be fitted with an LBC 3080/01 steel fire dome. This is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire-dome has knock-out holes for two grommets (supplied) and two cable glands (PG 13).



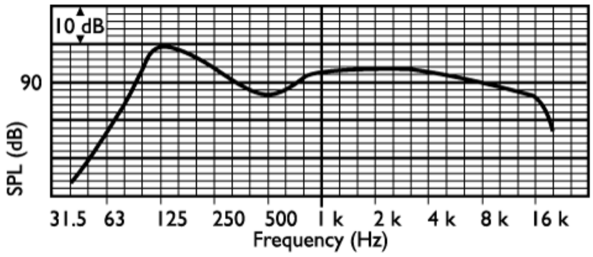
Dimensions in mm (in)



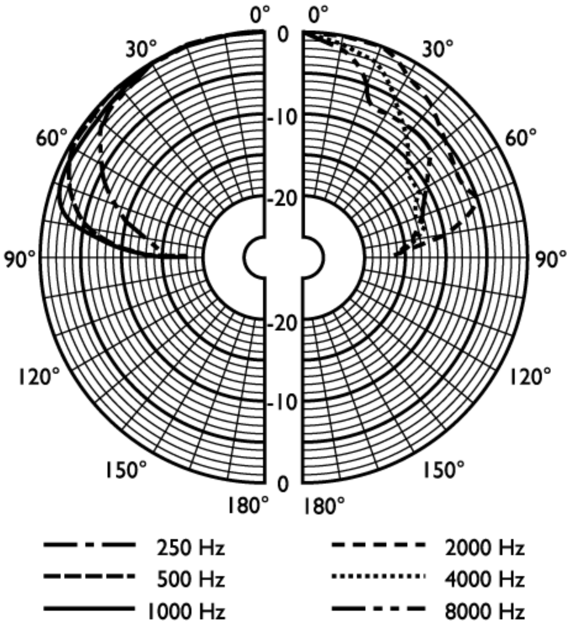
Dimensions in mm (in)


0
6 W
3 W
1.5 W
4 Ω

Circuit diagram



Frequency response

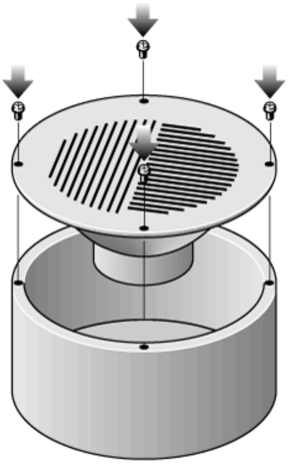


Polar diagram (measured with pink noise)

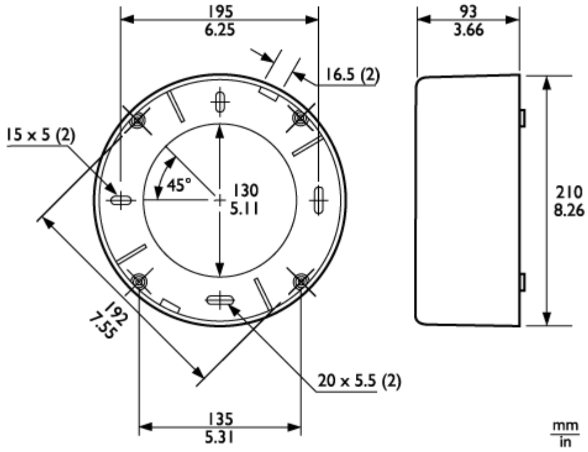
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	89	91	93	95	89
SPL max.	102	99	97	99	101	103	97
Q-factor	4.8	5	3	3.4	6.3	18	20
Efficiency	0.66	0.32	0.34	0.46	0.4	0.22	0.05
H. angle	150	140	180	160	140	55	45
V. angle	150	140	180	160	140	55	45

Acoustical performance specified per octave

LBC 3091/01 Surface Mounting Box

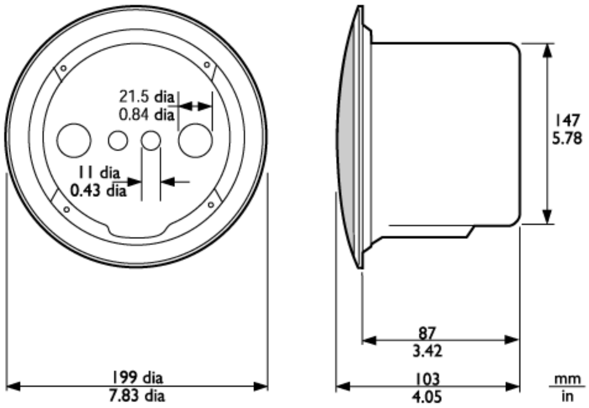


LBC 3090/01 and LBC 3091/01 assembly


195
6.25
16.5 (2)
93
3.66
15 x 5 (2)
45°
130
5.11
210
8.26
192
7.55
20 x 5.5 (2)
135
5.31
mm
in

Dimensions in mm (in)

LBC 3080/01 Fire Dome



LBC 3090/01 + LBC 3080/01 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Component
1	LBC 3090/01 Ceiling Loudspeaker
1	182 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	103 dB / 95 dB (SPL)
Effective frequency range (-10 dB)	70 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	210 mm (8.3 in)
Maximum depth	88 mm (3.5 in)
Mounting cut-out	182 + 5 mm (7.2 in)
Speaker diameter	152.4 mm (6 in)
Weight	1.1 kg (2.4 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

LBC 3091/01

Diameter	210 mm (8.3 in)
Maximum depth	93 mm (3.6 in)
Weight	290 g (0.6 lb)
Color	White (RAL 9010)

LBC 3080/01

Diameter	147 mm (5.8 in)
Maximum depth	87 mm (3.4 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	acc. to DIN 4102

Ordering information

LBC 3090/01 Ceiling Loudspeaker
Ceiling loudspeaker, 6 W, ABS grille, two spring-loaded clamps for ceiling mounting, protective dust cover, two-way push terminal block, white RAL 9010.
Order number **LBC3090/01**

Accessories

LBC 3091/01 Surface Mounting Box
Surface mounting box for securing ceiling loudspeaker LBC3090/01 to walls or hard ceilings.
Order number **LBC 3091/01**

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3080/01 Fire Dome
Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.
Order number **LBC 3080/01**

LBC 3090/31 Ceiling Loudspeaker

Features

- ▶ Suitable for speech and music reproduction
- ▶ Increased sensitivity
- ▶ Flush-mounting in ceiling cavity
- ▶ Easy to install
- ▶ Simple power setting

Bosch loudspeakers offer a combination of quality, performance and innovation in public address. They are the result of over half a century's experience in professional audio, and meet virtually all sound reinforcement system requirements.

Functions

A flush-mounting ceiling loudspeaker is available for general purpose applications. This full-range loudspeaker offers a high sound pressure level and a wide frequency range, and is suitable for both speech and music reproduction in shops, department stores, schools, offices, sports halls, hotels and restaurants.
The loudspeaker assembly consists of a single-piece, 6 W dual-cone loudspeaker and frame, with a 100 V matching transformer mounted on the back. A circular metal grille is integrated with the front. The appearance and neutral white colour have been selected to be unobtrusive in virtually all interiors. A dust cover protects the rear.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Ball-proof	acc. to DIN VDE 0710 part-13

Region	**Certification**
Europe	CE

Installation/configuration notes

Installation

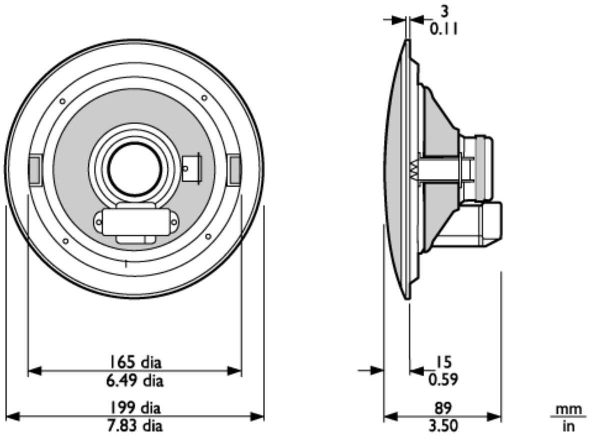
The assembly can be simply and quickly installed into a hole in the ceiling cavity and secured by two integral spring-loaded ceiling locking clamps (for ceilings and wall boards from 9 to 25 mm thick). A circular template for marking a 172 mm (6.7 in) diameter hole is included with the loudspeaker.

Terminal Block

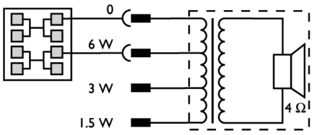
The unit has a two-way terminal block with push connections suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).

LBC 3080/01 Fire Dome

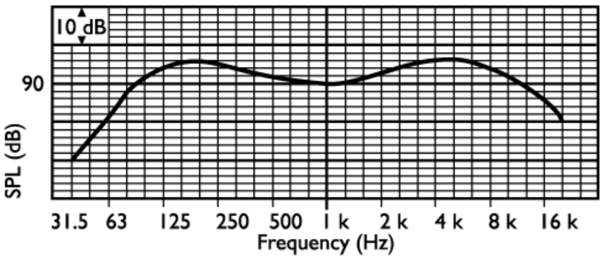
During a fire, the ceiling cavity can allow fire or smoke to spread throughout a building. To inhibit fire entering the cavity via the ceiling loudspeaker, it can be fitted with an LBC 3080/01 steel fire dome. This is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire-dome has knock-out holes for two grommets (supplied) and two cable glands (PG 13).



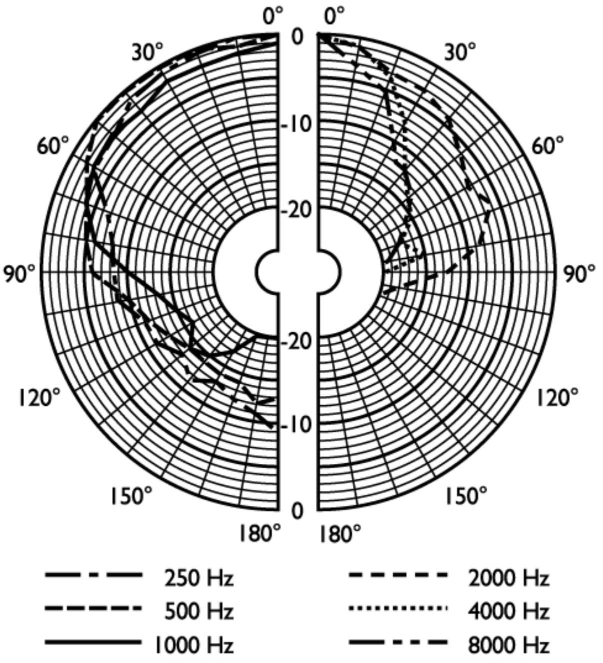
Dimensions in mm (in)



Circuit diagram



Frequency response



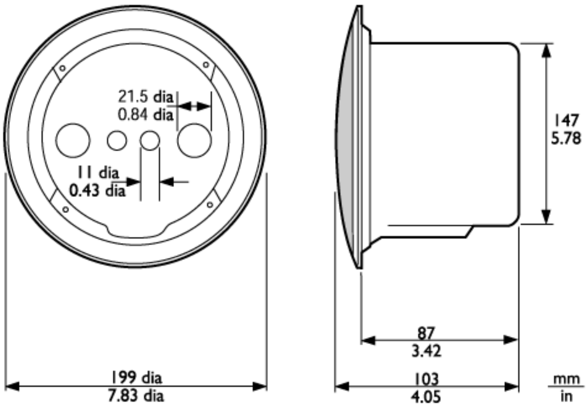
Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	91	88	91	93	96	92
SPL max.	102	99	96	99	101	104	100
Q-factor	4.8	5	3	3.4	6.3	18	20
Efficiency	0.66	0.32	0.27	0.47	0.4	0.28	0.1
H. angle	150	140	180	160	140	55	45
V. angle	150	140	180	160	140	55	45

Acoustical performance specified per octave

LBC 3080/01 Fire Dome

LBC 3080/01



LBC 3090/31 + LBC 3080/01 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Component
1	LBC 3090/31 Ceiling Loudspeaker
1	172 mm circular template

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	99 dB / 91 dB (SPL)
Sound pressure level at 6 W / 1 W (4 kHz, 1 m)	104 dB / 96 dB (SPL)
Effective frequency range (-10 dB)	70 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	1667 ohm
Connector	2-pole push-in terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	199 mm (7.8 in)
Maximum depth	89 mm (3.5 in)
Mounting cut-out	172 mm (6.5 in)
Speaker diameter	152.4 mm (6 in)
Weight	990 g (2.2 lb)
Color	White (RAL 9010)
Magnet weight	150 g (5.3 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

LBC 3080/01

Diameter	147 mm (5.8 in)
Maximum depth	87 mm (3.4 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	acc. to DIN 4102

Ordering information

LBC 3090/31 Ceiling Loudspeaker
Ceiling loudspeaker, 6 W, integrated circular metal grille, two spring-loaded clamps for ceiling mounting, protective dust cover, two-way push terminal block, white RAL 9010.
Order number **LBC3090/31**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3080/01 Fire Dome
Metal fire dome for the LBC 3087/41, LBC 3090/01, LBC 3090/31, LHM 0606/00, LHM 0606/10, and LHM 0626/00 ceiling loudspeakers, EN54-24 certified, flame red RAL 3000.
Order number **LBC 3080/01**

LBC 3099/41 Ceiling Loudspeaker

Features

- Excellent speech and music reproduction
- High sound pressure level
- Ideal for high-ceiling applications
- Flush mounted in ceilings
- Clamp mounting

The LBC 3099/41 is a flush-mounting ceiling loudspeaker for applications where extra power is required, such as rooms with high ceilings. It delivers a high sound pressure level and has a wide frequency range to ensure excellent speech intelligibility and good quality music reproduction. It is used in applications like shops, department stores, schools, offices, sports halls, hotels and restaurants.

Functions

The LBC 3099/41 has a single-piece, 24 W, dual-cone loudspeaker. A 100 V matching transformer is mounted on the back of the frame. An attractive metal grille is integrated with the front, and finished in an unobtrusive white color (RAL 9010).

Voice alarm loudspeaker
Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LBC 3099/41 is designed for use in voice alarm systems and is compliant with emergency standards.
The loudspeaker has built-in protection to ensure that , in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

It can also be fitted with an optional fire-dome LBC 3082/00 to increase protection of the cable termination.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

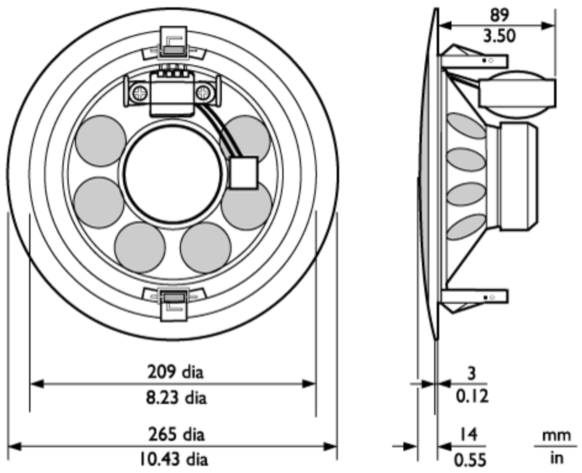
Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8 / EN 60849
Ball-proof	acc. to DIN VDE 0710 part 13

Region	Certification
Europe	CE

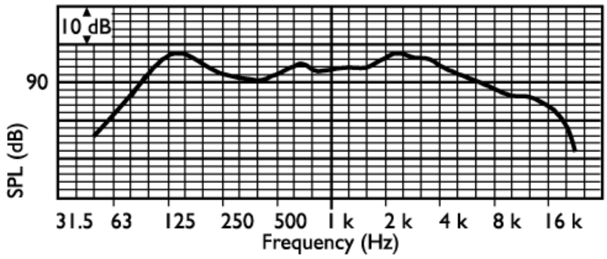
Installation/configuration notes

LBC 3099/41 with LBC 3082/00 fire dome assembly
The unit has two built-in spring-loaded locking clamps to secure it into a hole in suspended ceilings and wallboards from 9 to 25 mm (0.35 to 1.0 in) thick. A circular template for marking a 210 mm (8.3 in) diameter hole is included with the loudspeaker.

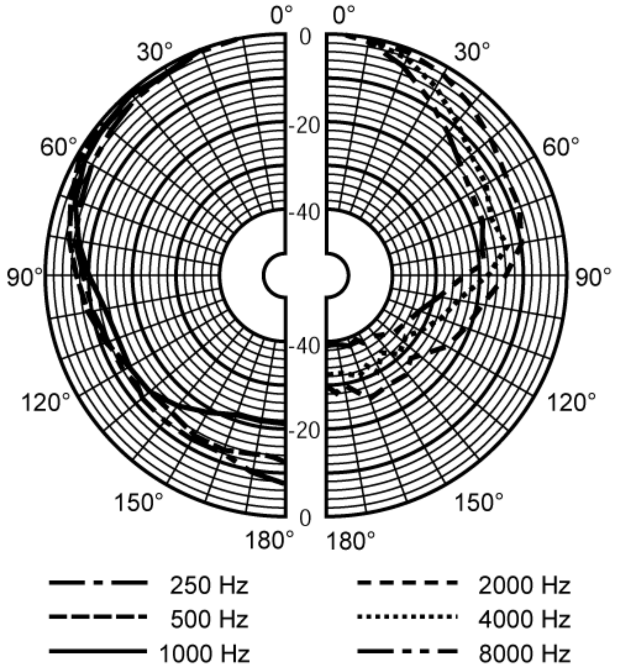
Terminal Block
The unit has a three-way terminal block with screw connections (including earth) suitable for loop-through wiring. Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).



Dimensions in mm (in)



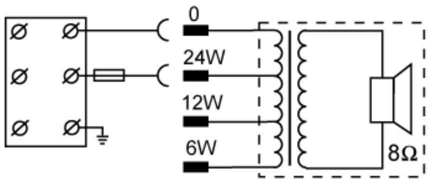
Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	94	92	90	92	94	93	86
SPL max.	108	106	104	106	108	107	100
Q-factor	3.7	4.5	2.8	5.2	8.9	17.4	34
Efficiency	0.85	0.44	0.63	0.38	0.36	0.14	0.02
H. angle	180	180	180	160	90	60	40
V. angle	180	180	180	160	90	60	40

Acoustical performance specified per octave



Circuit diagram

Parts included

Quantity	Components
1	LBC 3099/41 Ceiling Loudspeaker
1	210 mm (8.3 in) circular template

Technical specifications

Electrical*

Maximum power	36 W
Rated power (PHC)	24 / 12 / 6 W
Sound pressure level at 24 W / 1 W (1 kHz, 1 m)	106 dB / 92 dB (SPL)
Sound pressure level at 24 W / 1 W (4 kHz, 1 m)	107 dB / 93 dB (SPL)
Effective frequency range (-10 dB)	60 Hz to 18 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 60°
Rated voltage	100 V
Rated impedance	417 ohm
Connector	3-pole screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Diameter	265 mm (10.4 in)
Maximum depth	89 mm (3.5 in)
Mounting cut-out	210 mm (8.3 in)
Speaker diameter	203.2 mm (8 in)
Weight	1.8 kg (4 lb)
Color	White (RAL 9010)
Magnet weight	283 g (10 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3099/41 Ceiling Loudspeaker
Ceiling loudspeaker, 24 W, integrated circular metal grille, two spring-loaded clamps for ceiling mounting, three-way screw terminal block, white RAL 9010.
Order number **LBC3099/41**

Accessories

LBC 3082/00 Fire Dome
Metal fire dome for LBC 3099/41 ceiling loudspeaker, Flame red RAL 3000.
Order number **LBC 3082/00**

LC1 Modular Ceiling Loudspeaker Range

Features

- Excellent speech and music reproduction
- Easy installation with one grille size and one complete set of accessories
- Choice of different ceiling mounting methods
- Optional Pilot Tone indication
- EN 54-24, UL 2043. UL 1480 certified

The LC1 Modular Ceiling Loudspeaker range can be used for a wide variety of ceiling environments. They provide excellent speech and music in indoor public address applications. The range offers a choice of five loudspeakers distinguished by input power, opening angle and sound reproduction. It includes three 6 W single cone loudspeakers offering a choice of opening angle and two high performance 12 W and 24 W coaxial loudspeaker drivers. They all have the same grille size and can be used in combination with the same mounting accessories.
The loudspeakers are suitable for use in air-handling spaces when installed with the LC1-MFD enclosure.
The loudspeaker frame includes provision for mounting the optional pilot-tone indication board or WLS board and has standard a light conductor to indicate the pilot-tone status.

Functions

Voice Alarm applications

Voice alarm loudspeakers are specifically designed for use in buildings where system performance for verbal evacuation announcements is governed by regulations. The LC1 Modular Ceiling Loudspeaker range is designed for use in voice alarm systems and is EN 54-24 certified and compliant with British standard BS 5839-8.

Protection

The loudspeakers have built-in protection to ensure that fire damage to the loudspeakers does not cause failure of the connected circuit. In this way system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation.
The loudspeakers can also be used in combination with a metal fire-dome to increase protection of the cable termination.

Connections

The loudspeakers have a ceramic screw-terminal connection block, thermal fuse and heat-resistant, high-temperature wiring.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards.
Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations.
This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration. All plastic parts are self extinguishing according to UL 94 V0.

Safety	According to EN 60065
* Emergency	According to BS 5839-8
	According to EN 54-24
	According to EN 60849
UL listed	1480/2043
Ball-proof	According to DIN VDE 0710 part 13
** Water and dust protection	According to EN 60529 IP21
*** Water and dust protection	According to EN 60529 IP33
**** Salt mist	According to IEC-68-2-11 Ka

* Only in combination with the LC1-MFD.
** Only in combination with the LC1-MFD or LC1-CMR including LC1-CBB.
*** and **** only LC1-WC06E8 with LC1-CMR including LC1-CBB.

Notice
UL 1480 requires installation with the LC1-MFD or LC1-CSMB, or the LC1-CMR including LC1-CCB. LC1-UM06E8 and LC1-UM12E8 have UL 1480 F certification listed for use in Fire Alarm and/or Emergency Communication Systems.

Region	Certification
Europe	CPD
Poland	CNBOP
USA	UL

Installation/configuration notes

LC1-UM24E Dimensions

Installation

The LC1 Modular Ceiling Loudspeaker range is very installation friendly. The loudspeaker consists of a frame with the loudspeaker driver and metal or ABS grille with integrated light conductor, matching transformer and ceramic screw terminal connection block. On the loudspeaker are provisions for mounting the optional pilot-tone indication board and optional line/loudspeaker surveillance board.

Power tapping on the 70 V / 100 V matching transformer allows selection of full-power, half-power, quarter-power and eight-power radiation.

Ordering information

Due to the modular concept of this system, it is important to order not only the ceiling loudspeaker LC1-xMxxE, but also the flush ceiling mounting accessory of your choice, as mentioned here below. The loudspeakers can be flush mounted into the ceiling by means of the “U” shaped Metal Mounting support bracket LC1-MMSB or the ABS Ceiling Mounting ring LC1-CMR with optional Back Box LC1-CBB.

In order to take full advantage of the modular architecture, all parts are separately packaged in the order in which they are required for installation.

LC1-MMSB Mounting Support Bracket

The metal Mounting Support Bracket has two ceiling clamps, which are secured with thumb screws in the ceiling hole. The bracket is also provided with two 4 mm holes for mounting the bracket with two screws into thin (metal) ceilings. Two spring catchers (for accepting the V-shaped loudspeaker springs) are provided. The bracket provides a provision for attaching an optional safety steel cord.

LC1-MMSB Metal Mounting Support Bracket

LC1-CMR Mounting Ring

The LC1-CMR is an alternative for the ceiling mounting support bracket. The ABS Mounting Ring has two screw driving clamps to fix the mounting ring into the ceiling board. Inside the ring, two spring catchers (for accepting the V-shaped loudspeaker springs) are provided.

LC1-CBB Back Box

On top of the mounting ring, provisions are present to “click-on” the optional Back Box. The combination of Mounting Ring and Back Box prevents sound traveling via the ceiling cavity to adjacent areas, and fully protects the loudspeaker from dust, falling objects.

The Back Box has knock-out holes for two grommets (11 mm/0.80 in) and for two cable glands (20.5 mm/ 0.80 in)

LC1-CMR and LC1-CBB Ceiling Mounting Ring and Back Box assembly

LC1-CSMB Surface Mounting Box

This ABS Surface Mounting Box is available for securing the ceiling loudspeaker to walls or hard ceilings. The Surface Mounting Box has at the side two holes standard covered opposite positioned and four knock-out holes on the rear side. For optional single point suspension of the assembly of Ceiling Loudspeaker and Surface Mounting Box, a separate metal suspension kit, LC1-MSK is available.

LC1-CSMB Surface Mounting Box

LC1-MSK Metal Suspension Kit

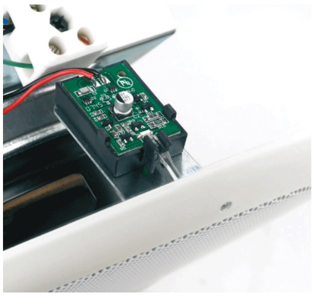
This kit contains a tri-angled metal plate to be attached by three screws (supplied) onto the rear of the Surface Mounting Box and includes three suspension chains, converged in an eye-hook.

LC1-MSK Metal Suspension Kit

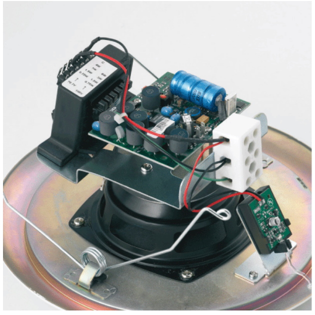
LC1-MFD Metal Fire Dome
Ease of installation for individual loudspeaker and loudspeaker/fire-dome combinations. The Fire Dome mounting is fixed in the ceiling, prior to the ceiling speaker mounting. The Fire Dome has a dual connection entry, enabling loop-through cabling and provision for attaching an optional safety steel cord.
Connections are made using an innovative ceramic screw terminal connection block on the metal fire dome with loop-through facility.
Suitable for use in air-handling spaces.

LC1-MFD Metal Fire Dome with innovative ceramic connector

LC1-PIB Pilot-tone Indication Board
The loudspeakers have provision for optional mounting of the Pilot-tone Indication Board. This small PCB with LED can fixed into a holder, connected to a light conductor standard fitted. The presence of the pilot-tone can be visually checked by means of the flashing of the LED, integrated in the front grille rim. The required level of the pilot tone signal is 4 V rms @ 20 kHz and the load to the amplifier from these boards is negligible.

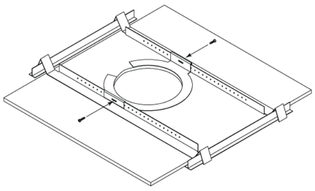


LC1-PIB fitted on the loudspeaker and showing the light conductor



Rear view LC1-WM06E8 showing the optional mounting for LC1-PIB and line/loudspeaker supervision board

LM1-TB Tile bridge / C-ring
This accessory consists of a C-ring and two tile rails, to be used for reinforce the ceiling material and to spread out the pressure from the ceiling speaker clamps. The C-ring can be guided through the cut-out opening in the ceiling and placed on the back side of the hole before inserting the loudspeaker. The tile rails are suitable for 600 mm distance ceiling tile support rails.

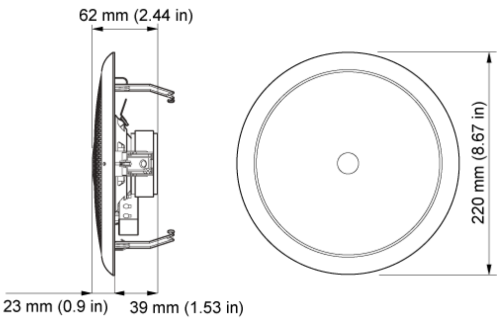


LM1-TB Tile bridge / C-Ring

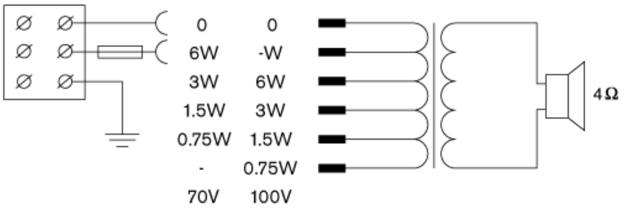
Type number overview

LC1-WC06E8	Ceiling Loudspeaker (6 W)
LC1-WM06E8	Ceiling Loudspeaker (6 W)
LC1-UM06E8	Ceiling Loudspeaker (6 W)
LC1-UM12E8	Ceiling Loudspeaker (12 W)
LC1-UM24E8	Ceiling Loudspeaker (24 W)
LC1-MMSB	Mounting support bracket
LC1-CMR	Mounting Ring
LC1-CBB	Back Box
LC1-CSMB	Surface Mounting Box
LC1-MSK	Metal Suspension Kit
LC1-MFD	Metal Fire Dome
LC1-PIB	Pilot-Tone Indication Board
LM1-TB	Tile bridge / C-ring

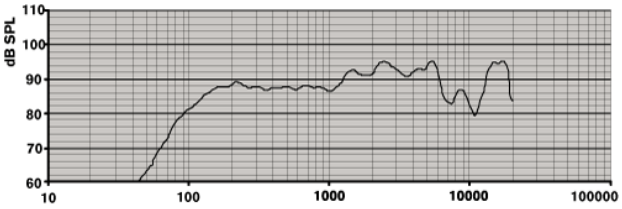
LC1 Modular Ceiling Loudspeaker Range overview



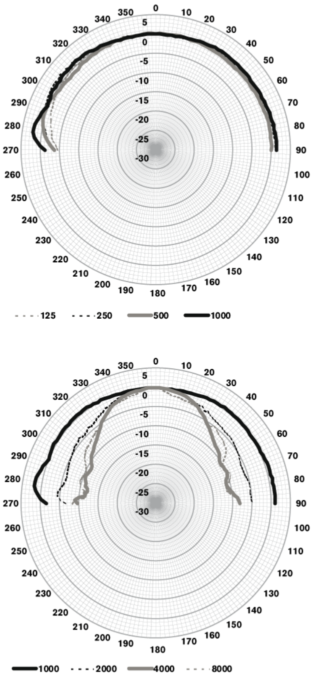
LC1-WC06E8 Dimensions in mm (in)


0
6W
3W
1.5W
0.75W
-
70V
0
-W
6W
3W
1.5W
0.75W
100V
4Ω

LC1-WC06E8 Circuit diagram



LC1-WC06E8_Frequency response



LC1-WC06E8 Polar diagrams

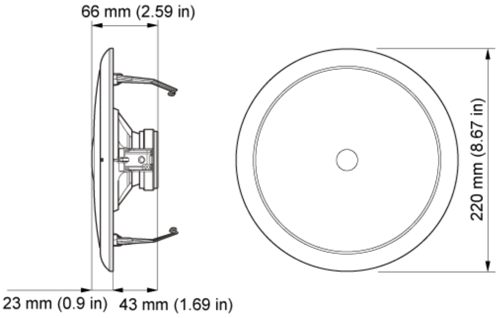
Octave band sensitivity LC1-WC06E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.3	-	-
250 Hz	88.3	-	-
500 Hz	87.5	-	-
1000 Hz	88.4	-	-
2000 Hz	93.4	-	-
4000 Hz	93.8	-	-
8000 Hz	88.0	-	-
A-weighted	-	89.0	106.2
Lin-weighted	-	89.7	107.1

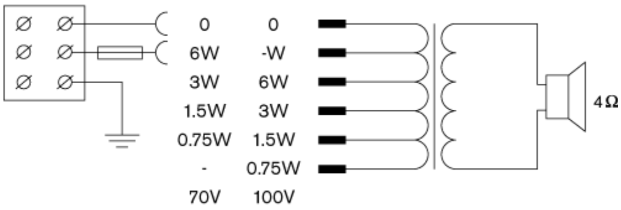
Octave band opening angles LC1-WC06E8

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	180	180
4000 Hz	75	75
8000 Hz	96	96

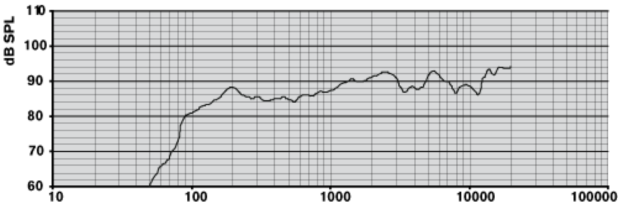
LC1-WC06E8 Acoustical performance specified per octave.
* (all measurements are done with a pink noise signal; the values are in dBSPL).


66 mm (2.59 in)
220 mm (8.67 in)
23 mm (0.9 in)
43 mm (1.69 in)

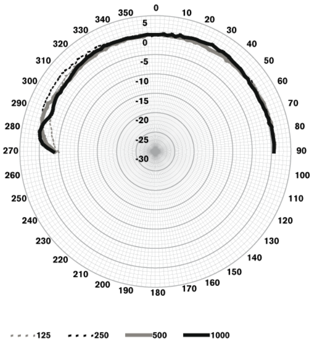
LC1-WM06E8 Dimensions in mm (in)

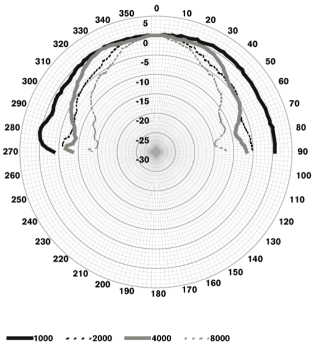

0
6W
3W
1.5W
0.75W
-
70V
0
-W
6W
3W
1.5W
0.75W
100V
4Ω

LC1-WM06E8 Circuit diagram



LC1-WM06E8 Frequency response





LC1-WM06E8 Polar diagrams

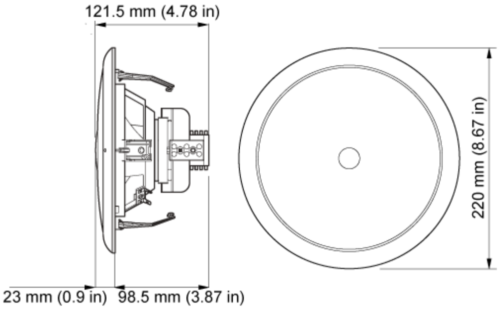
Octave band sensitivity LC1-WM06E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	83.4	-	-
250 Hz	86.1	-	-
500 Hz	85.1	-	-
1000 Hz	87.8	-	-
2000 Hz	91.2	-	-
4000 Hz	89.7	-	-
8000 Hz	89.3	-	-
A-weighted	-	86.9	94.2
Lin-weighted	-	88.1	94.9

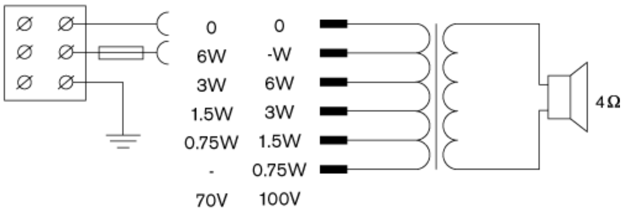
Octave band opening angles LC1-WM06E8

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	120	120	
4000 Hz	128	128	
8000 Hz	75	75	

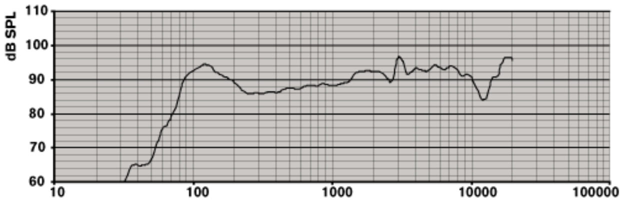
LC1-WM06E8 Acoustical performance specified per octave. * (all measurements are done with a pink noise signal; the values are in dBSPL).



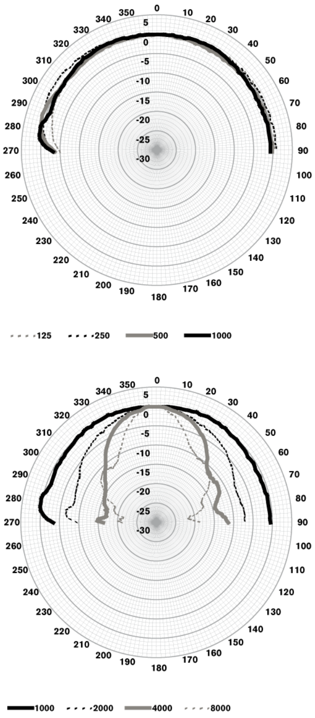
LC1-UM06E8 Dimensions in mm (in)



LC1-UM06E8 Circuit diagram



LC1-UM06E8 Frequency response



LC1-UM06E8 Polar diagrams

Octave band sensitivity LC1-UM06E8

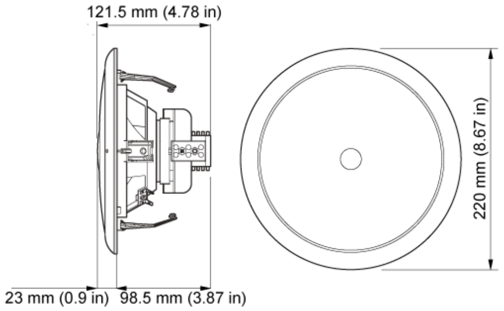
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	93.4	-	-

250 Hz	88.4	-	-
500 Hz	86.3	-	-
1000 Hz	88.5	-	-
2000 Hz	91.4	-	-
4000 Hz	93.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	88.9	95.8
Lin-weighted	-	90.4	96.5

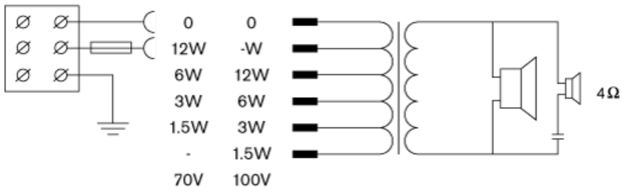
Octave band opening angles LC1-UM06E8

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	108	108	
4000 Hz	62	62	
8000 Hz	38	38	

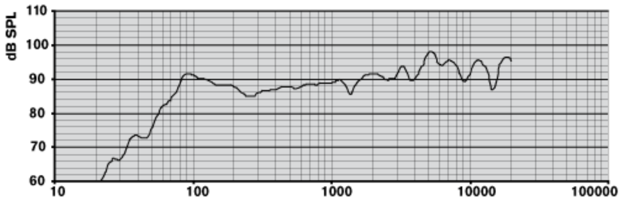
LC1-UM06E8 Acoustical performance specified per octave.
* (all measurements are done with a pink noise signal; the values are in dBSPL).



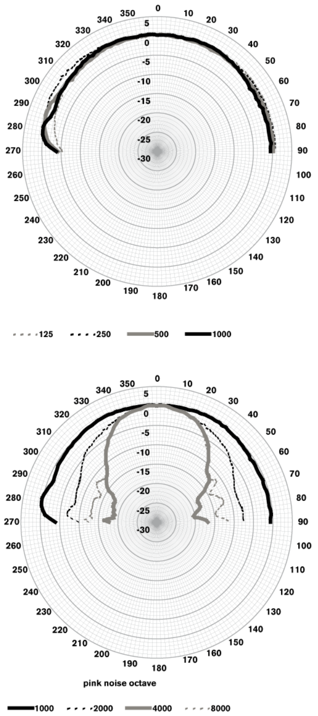
LC1-UM12E8 Dimensions in mm (in)



LC1-UM12E8 Circuit diagram



LC1-UM12E8 Frequency response



LC1-UM12E8 Polar diagrams

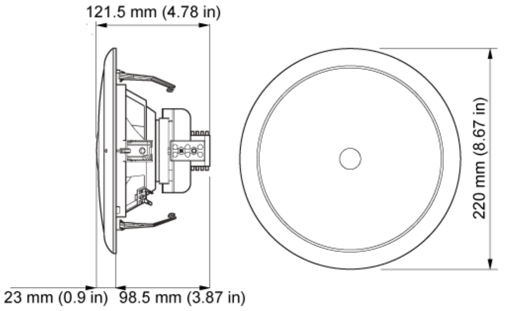
Octave band sensitivity LC1-UM12E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	89.4	-	-
250 Hz	87.3	-	-
500 Hz	86.5	-	-
1000 Hz	88.6	-	-
2000 Hz	90.0	-	-
4000 Hz	94.0	-	-
8000 Hz	93.7	-	-
A-weighted	-	88.9	99.3
Lin-weighted	-	90.3	100.2

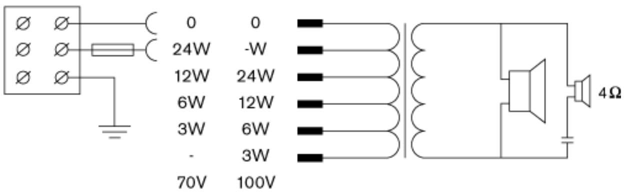
Octave band opening angles LC1-UM12E8

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	108	108	
4000 Hz	64	64	
8000 Hz	62	62	

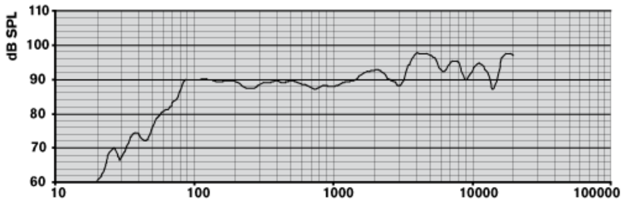
LC1-UM12E8 Acoustical performance specified per octave.
* (all measurements are done with a pink noise signal; the values are in dBSPL).



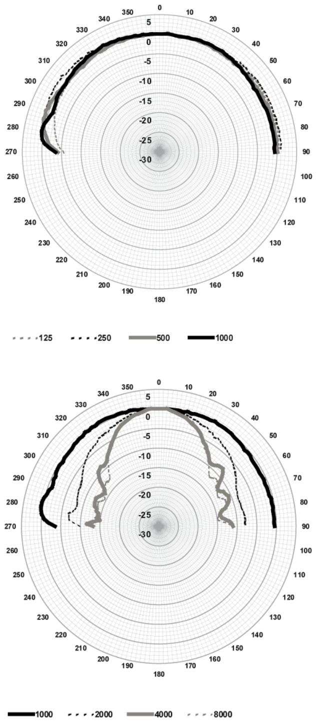
LC1-UM24E8 Dimensions in mm (in)



LC1-UM24E8 Circuit diagram



LC1-UM24E8 Frequency response



LC1-UM24E8 Polar diagrams

Octave band sensitivity LC1-UM24E8

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	89.9	-	-
250 Hz	88.3	-	-
500 Hz	89.0	-	-
1000 Hz	88.6	-	-
2000 Hz	91.5	-	-
4000 Hz	95.6	-	-
8000 Hz	93.8	-	-
A-weighted	-	90.0	103.1
Lin-weighted	-	91.3	103.8

Octave band opening angles LC1-UM24E8

	Horizontal	Vertical
125 Hz	180	180
250 Hz	180	180
500 Hz	180	180
1000 Hz	180	180
2000 Hz	106	106
4000 Hz	58	58
8000 Hz	57	57

LC1-UM24E8 Acoustical performance specified per octave.
* (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

Quantity	Components
1	LC1 Ceiling Loudspeaker
1	Installation instruction

Technical specifications

Electrical*

	LC1-WC06E8
Description	Ceiling loudspeaker
Maximum power	9 W
Rated power	6 W (6 / 3 / 1.5 / 0.75 W)
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	96 dB / 88 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 75°
Effective frequency range (-10 dB)	85 Hz to 20 kHz
Rated voltage	70 V / 100 V
Rated impedance	835 / 1667 Ohm
Connector	3-pole screw-terminal block

	LC1-WM06E8	LC1-UM06E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Maximum power	9 W	9 W
Rated power	6 W (6 / 3 / 1.5 / 0.75 W)	6 W (6 / 3 / 1.5 / 0.75 W)
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	96 dB / 88 dB	97 dB / 89 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 128°	180° / 62°
Effective frequency range (-10 dB)	85 Hz to 20 kHz	70 Hz to 20 kHz
Rated voltage	70 V / 100 V	70 V / 100 V
Rated impedance	835 / 1667 Ohm	835 / 1667 Ohm
Connector	3-pole screw-terminal block	3-pole screw-terminal block

	LC1-UM12E8	LC1-UM24E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Maximum power	18 W	36 W
Rated power	12 W (12 / 6 / 3 / 1.5 W)	24 W (24 / 12 / 6 / 3 W)
Sound Pressure Level at rated power / 1 W (1 kHz, 1 m)	100 dB / 89 dB	103 dB / 89 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 64°	180° / 58°
Effective frequency range (-10 dB)	55 Hz to 20 kHz	55 Hz to 20 kHz
Rated voltage	70 V / 100 V	70 V / 100 V
Rated impedance	418 / 833 Ohm	208 / 417 Ohm
Connector	3-pole screw-terminal block	3-pole screw-terminal block

** Technical performance data acc. to IEC 60268-5*

Mechanical

	LC1-WC06E8
Description	Ceiling loudspeaker
Diameter	220 mm (8.67 in)
Maximum depth*	125 mm (4.92 in)
Color	White (RAL 9010)
Material (frame / front grille)	ABS
Weight	820 g (1.81 lb)

	LC1-WM06E8	LC1-UM06E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Diameter	220 mm (8.67 in)	220 mm (8.67 in)
Maximum depth*	125 mm (4.92 in)	125 mm (4.92 in)
Color	White (RAL 9010)	White (RAL 9010)
Material (frame / front grille)	Steel	Steel
Weight	1.18 kg (2.6 lb)	1.16 kg (2.56 lb)

	LC1-UM12E8	LC1-UM24E8
Description	Ceiling loudspeaker	Ceiling loudspeaker
Diameter	220 mm (8.67 in)	220 mm (8.67 in)
Maximum depth*	125 mm (4.92 in)	125 mm (4.927 in)
Color	White (RAL 9010)	White (RAL 9010)
Material (frame / front grille)	Steel	Steel
Weight	1.3 kg (2.86 lb)	1.75 kg (3.86 lb)

	LC1-MMSB	LC1-CMR
Description	Mounting Support Bracket	Ceiling Mounting Ring
Dimensions	215 x 125 x 56 mm (8.47 x 4.92 x 2.2 in)	215 x 70 mm (8.47 x 2.75 in)
Mounting cut-out	190 mm (7.48 in)	200 mm (7.88 in)
	Cut-out template included	Cut-out template included
Max. ceiling thickness	50 mm (1.97 in)	25 mm (0.98 in)
Material	Steel	ABS
Color	Zinc plated	White (RAL 9010)
Weight	390 g (0.70 lb)	210 g (0.46 lb)

	LC1-CBB	LC1-CSMB
Description	Back Box	Surface Mounting Box
Dimensions	196 x 70 mm (7.72 x 2.75 in)	220 x 128 mm (8.67 x 5.04 in)
Material	ABS	ABS
Color	White (RAL 9010)	White (RAL 9010)
Weight	174 g (0.38 lb)	690 g (1.52 lb)

	LC1-MFD	LC1-PIB
Description	Metal Fire Dome (including ceramic connector)	Pilot-tone Indication Board
Dimensions	215 x 155 mm (8.47 x 6.1 in)	20 x 30 mm (0.78 x 1.18 in)
Mounting cut-out	190 mm (7.48 in)	n.a.
	Cut-out template included	n.a

Material	Steel	n.a.
Color	Flame red (RAL 3000)	n.a.
Certified B15	According to DIN4102-8	n.a.
Weight	1 kg (2.20 lb)	3 g (0.006 lb)

	LM1-TB	LC1-MSK
Description	Tile Bridge / C-Ring	Metal Suspension Kit
Dimensions		
Chain length	n.a	320 mm (12.59 in)
Tile rails	643 x 34 mm (25.33 x 1.34 in)	n.a
C-Ring	250 x 30 mm (9.85 x 1.18 in)	n.a
Material	Steel	Steel
Color	Zinc plated	Zinc plated
Weight	939 g (2.07 lb)	174 g (0.38 lb)

* including LC1-MMSB

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617 BA Eindhoven, The Netherlands
10
1438-CPD-0194

EN 54-24:2008
Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings
Ceiling Loudspeakers 6 W, 12 W, 24 W and accessories
LC1-WM06E8, LC1-UMxxE8 and LC1-MFD
LC1-CMR, LC1-CBB, LC1-CSMB, LC1-MSK
Type A

Ordering information

LC1-WC06E8 Ceiling Loudspeker 6 W

Ceiling loudspeaker, 6 W, ABS circular grille, 4-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.
Order number **LC1-WC06E8**

LC1-WM06E8 Ceiling Loudspeaker 6 W

Ceiling loudspeaker, 6 W, integrated circular metal grille, 4-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.
Order number **LC1-WM06E8**

LC1-UM06E8 Ceiling Loudspeaker 6 W

Ceiling loudspeaker, 6 W, integrated circular metal grille, 6-inch driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.
Order number **LC1-UM06E8**

LC1-UM12E8 Ceiling Loudspeaker 12 W

Ceiling loudspeaker, 12 W, integrated circular metal grille, 6-inch coax (two-way system) driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.
Order number **LC1-UM12E8**

LC1-UM24E8 Ceiling Loudspeaker 24 W

Ceiling loudspeaker, 24 W, integrated circular metal grille, 6-inch coax (two-way system) driver, without flush ceiling-mounting accessory, EN54-24 certified, white RAL 9010.
Order number **LC1-UM24E8**

Accessories

LC1-MMSB Mounting Support Bracket

Metal mounting support bracket with two ceiling clamps for securing LC1 ceiling loudspeakers in the ceiling.
Order number **LC1-MMSB**

LC1-CMR Mounting Ring

Ceiling mounting ring with screw driving ceiling clamps for securing the LC1 ceiling loudspeakers in the ceiling, EN54-24 certified, white RAL 9010.
Order number **LC1-CMR**

LC1-CBB Back Box

Back box for mounting onto the LC1-CMR, fully protects the LC1 loudspeaker from dust and dripping water, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas, EN54-24 certified, white RAL 9010.
Order number **LC1-CBB**

LC1-MFD Metal Fire Dome

Metal fire dome for use with the LC1 ceiling loudspeakers, including ceramic terminal connector with cable loop-through facility, EN54-24 certified, flame red RAL 3000.
Order number **LC1-MFD**

LC1-CSMB Surface Mounting Box

Surface mounting box, ABS, for securing LC1 ceiling loudspeaker to walls or hard ceilings.
Order number **LC1-CSMB**

LC1-MSK Metal Suspension Kit

Metal suspension kit for single-point suspension of LC1 ceiling loudspeaker and LC1-CSMB surface mounting box assembly.
Order number **LC1-MSK**

LC1-PIB Pilot Tone Indication Board

Pilot-tone indication board for mounting in LC1 ceiling loudspeakers, enables optional visualization of presence of pilot tone (set of six pieces).
Order number **LC1-PIB**

LM1-TB Tile Bridge / C-Ring
Tile bridge/C-ring, an installation accessory for reinforcing the ceiling material and distributing the pressure from the ceiling speaker clamps (set of two pieces).
Order number **LM1-TB**

LC4 Ceiling Loudspeaker Range

Features

- Innovative CosCone full range driver
- Excellent speech and music reproduction
- Unrivalled opening angle for all octave frequencies
- Paintable grille
- EN 54-24, UL2043, UL1480 certified

The LC4 Ceiling Loudspeaker Range can be used for a wide variety of ceiling environments. They provide excellent speech and music in indoor public address applications. New CosCone driver technology, used in this range, stands for delivering outstanding sound quality from a small sized unit. It ensures a wide and equal spread of all octave frequencies and eliminates high-frequency beaming. Fewer loudspeakers are needed to cover a given area, and the noticeable “fading” that can occur as a listener walks from one loudspeaker to another area is eliminated.
The LC4-UCxxE ceiling loudspeaker is a light and compact unit with an unobtrusive, neutral designed front grille. The range offers a choice of three loudspeakers distinguished by input power of: 6 W, 12 W and 24 W with the same wide opening angle, ensuring a wide and equal spread of the important frequency octaves for speech intelligibility and music clarity. The LC4 range also includes a back-box and metal fire-dome.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

The LC4 range has UL1480F certification listed for use in Fire Alarm and/or Emergency Communication Systems.

Safety	According to EN 60065
Water and dust protected *	According to EN 60529 IP 21
Emergency *	According to BS 5839 part 8 According to EN 54-24

* With LC4-CBB back-box or LC4-MFD fire-dome

Region	Certification
Europe	CE
	CPD
USA	UL

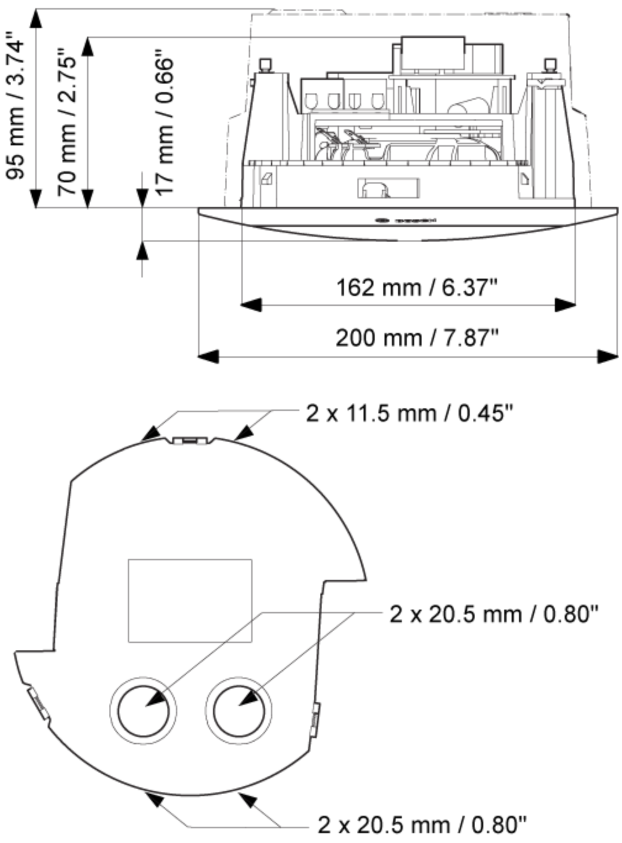
Installation/configuration notes

The LC4 range is very installation friendly. A cutting template is supplied with each unit, and the loudspeaker is secured in ceilings up to 50 mm (2 in) thick using two integral screw driven clamps.
Connections are made using a screw terminal block on the frame, where each incoming and outgoing conductor of the same potential can be connected to a separate screw on a terminal block.
Power tapping on both 70 V and 100 V allows selection of full-power, half-power, quarter-power, eight-power radiation and 8 Ohm.
A selector at the front of the frame simplifies the required selection of the power setting.
The loudspeaker grille, standard supplied, can be secured to the loudspeaker unit with a quick bayonet fitting after installation of the loudspeaker into the ceiling.

The optional back-box (LC4-CBB), protects the rear of the loudspeaker from dust, falling objects, makes the unit vermin proof and prevents sound traveling via the ceiling cavity to adjacent areas.
The back-box is assembled with the loudspeaker by means of a snap-in construction and has knock-out holes for two grommets (11.5 mm) and for two cable glands (20.5 mm) aside and on the top.

Ease of installation for individual loudspeaker and loudspeaker / fire-dome combinations. The metal fire-dome (LC4-MFD) mounting is fixed in the ceiling prior to the ceiling speaker mounting. The fire-dome is provided with a safety cord allowing the installer to temporarily hang the loudspeaker in the fire-dome, while connecting. Connections are made using an innovative ceramic screw terminal connector on top of the metal fire-dome with loop-through facility.

The loudspeaker has a provision also for adding a capacitor in case the loudspeaker is used in systems with DC supervision.

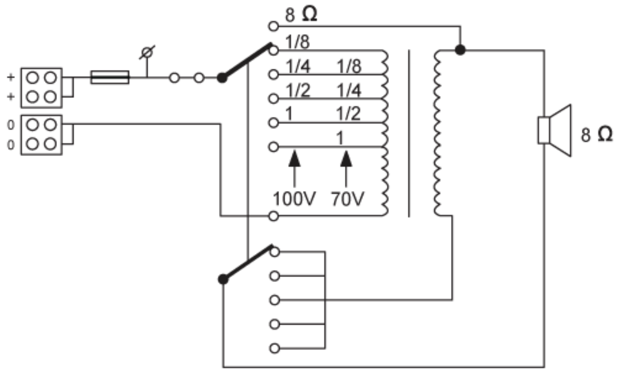

95 mm / 3.74"
70 mm / 2.75"
17 mm / 0.66"
162 mm / 6.37"
200 mm / 7.87"
2 x 11.5 mm / 0.45"
2 x 20.5 mm / 0.80"
2 x 20.5 mm / 0.80"

Mechanical diagram LC4-UCxxE and LC4-CBB

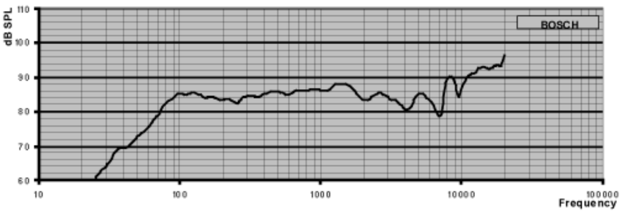
BOSCH
LC4-CBB
RoHS

Rear view LC4-UCxxE including LC4-CBB

Rear view LC4-UCxxE including LC4-MFD, showing the ceramic connector

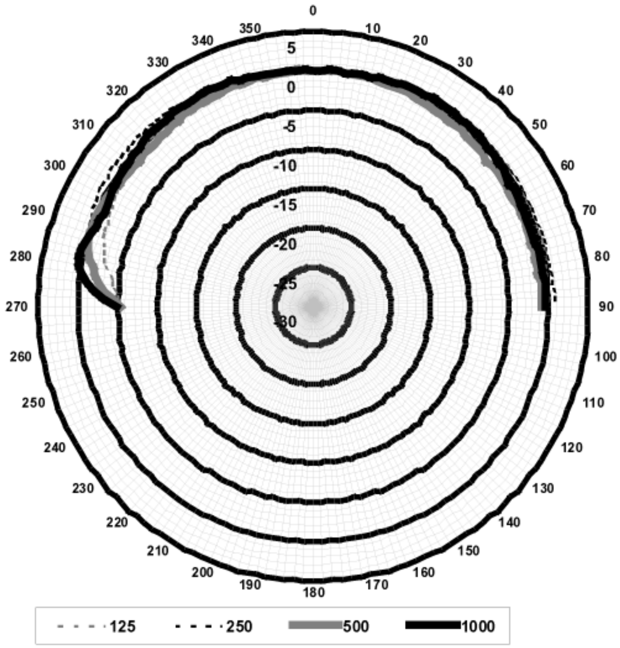

8 Ω
1/8
1/4
1/8
1/2
1/4
1
1/2
1
100V
70V
8 Ω
+
+
0
0

Circuit diagram LC4-UCxxE

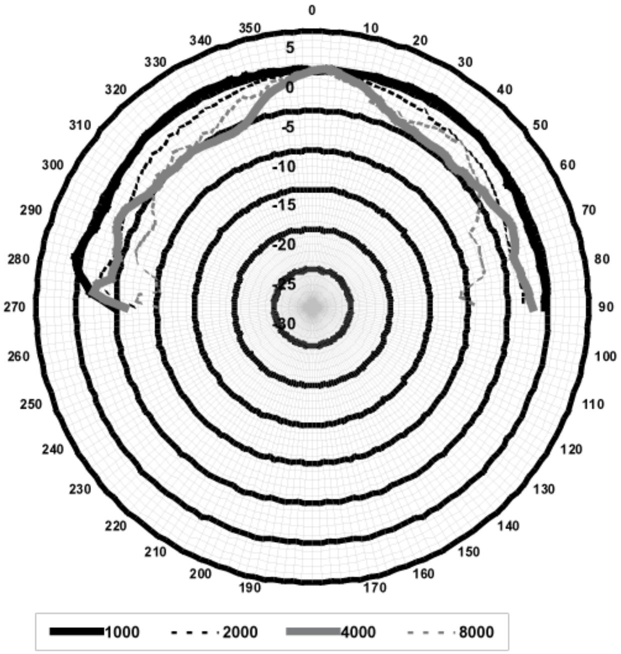


Frequency response LC4-UCxxE

LC4 ceiling loudspeaker range overview



LC4-UCxxE horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.



LC4-UCxxE horizontal/vertical polar diagram (low frequency). Normalized at 0-degrees axis.

Octave band sensitivity LC4-UC06E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.9	-	-
250 Hz	83.5	-	-
500 Hz	86.1	-	-
1000 Hz	86.6	-	-
2000 Hz	89.4		
4000 Hz	90.1	-	-
8000 Hz	91.1	-	-
A-weighted	-	86.4	93.5
Lin-weighted	-	88.2	95.4

Octave band sensitivity LC4-UC12E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	85.9	-	-
250 Hz	83.7	-	-
500 Hz	86.1	-	-
1000 Hz	86.8	-	-
2000 Hz	89.4		
4000 Hz	88.5	-	-
8000 Hz	90.5	-	-

A-weighted	-	85.9	95.1
Lin-weighted	-	88.0	97.4

Octave band sensitivity LC4-UC24E *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	86.3	-	-
250 Hz	83.3	-	-
500 Hz	86.0	-	-
1000 Hz	86.5	-	-
2000 Hz	88.9		
4000 Hz	88.3	-	-
8000 Hz	89.3	-	-
A-weighted	-	85.6	97.7
Lin-weighted	-	87.6	100.4

Octave band opening angles LC4-UCxxE *

	Horizontal	Vertical	
125 Hz	180	180	
250 Hz	180	180	
500 Hz	180	180	
1000 Hz	180	180	
2000 Hz	180	180	
4000 Hz	180	180	
8000 Hz	128	128	

Acoustical performance specified per octave
(all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LC4-UCxxE Ceiling Loudspeaker
1	Installation Instruction
1	Ceiling cut-out template

Technical specifications

Electrical *

	LC4-UC06E	LC4-UC12E
Description	Ceiling loudspeaker	
Maximum power	9 W	18 W
Rated power	6 W (6/3/1.5/0.75W)	12 W (12/6/3/1.5W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	95 dB / 87 dB (SPL)	98 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4kHz (-6 dB)	180° / 180°	180° / 180°
Effective frequency range (-10 dB)	65 Hz to 20 kHz	65 Hz to 20 kHz
Rated voltage	6.93 / 70 / 100 V	9.8 / 70 / 100 V
Rated impedance	8 / 835 / 1667 Ohm	8 / 418 / 833 Ohm
Electrical connection	4-way screw terminal block	

	LC4-UC24E
Description	Ceiling loudspeaker
Maximum power	36 W
Rated power	24 W (24/12/6/3 W)
Sound pressure level at 6 W power / 1 W (1 kHz, 1 m)	101 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4kHz (-6 dB)	180° / 180°
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Rated voltage	13.9 / 70 / 100 V
Rated impedance	8 / 208 / 417 Ohm
Electrical connection	4-way screw terminal block

* Technical performance according to IEC 60268-5

Mechanical

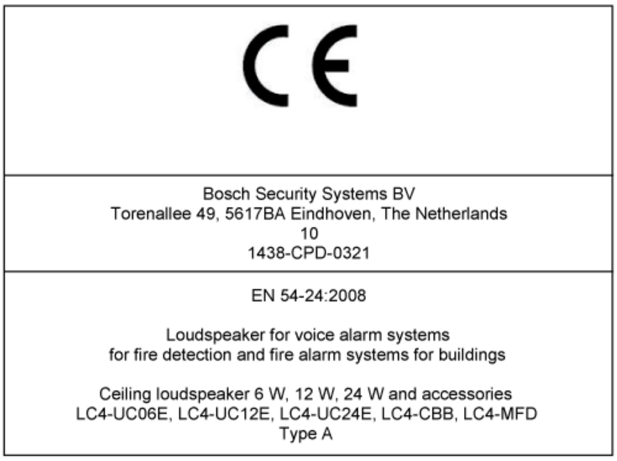
	LC4-UC06E	LC4-UC12E	LC4-UC24E
Description	Ceiling Loudspeaker		
Diameter	200 mm (7.87 in)		
Mounting cut-out	162 mm (6.38 in)		
Min./Max. ceiling thickness	5 to 50 mm (0.19 to 1.97 in)		
Maximum depth	70 mm (2.75 in)		
Material (Loudspeaker unit)	ABS (V 0)		
Material (front grille)	Steel mesh with ABS (V 0) rim		
Weight	800 g (1.77 lb)	840 g (1.86 lb)	990 g (2.18 lb)
Color (loudspeaker unit)	Black (RAL 9011)		
Color (front grille)	White (RAL 9003)		

	LC4-CBB	LC4-MFD
Description	Back-Box	Metal Fire-dome
Diameter	160 mm (6.29 in)	197 / 175 mm (7.75 / 6.88 in)

Maximum depth	78 mm (3.07 in)	156 mm (6.14 in)
Mounting cut-out	n.a.	178 mm (7.00 in)
Min./Max. ceiling thickness	n.a.	5 to 50 mm (0.19 to 1.97 in)
Material	ABS (V 0)	Steel
Weight	160 g (0.35 lb)	998 g (2.20 lb)
Color	Black (RAL 9011)	Flame red (RAL 3000)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%


CE

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0321

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Ceiling loudspeaker 6 W, 12 W, 24 W and accessories
LC4-UC06E, LC4-UC12E, LC4-UC24E, LC4-CBB, LC4-MFD
Type A

Ordering information

LC4-UC06E Ceiling Loudspeaker 6 W
Ceiling loudspeaker 6 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.
Order number **LC4-UC06E**

LC4-UC12E Ceiling Loudspeaker 12 W
Ceiling loudspeaker 12 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.
Order number **LC4-UC12E**

LC4-UC24E Ceiling Loudspeaker 24 W
Ceiling loudspeaker 24 W, wide-opening angle for all octave frequencies, separate ABS grille with metal grille, two screw-driven clamp ceiling mounting, EN54-24 certified, white RAL 9003.
Order number **LC4-UC24E**

Accessories

LC4-CBB Back-box
Back box for mounting onto the LC4 loudspeaker, protects the rear of the loudspeaker from dust and dripping water, makes the unit vermin proof, and prevents sound traveling via the ceiling cavity to adjacent areas, EN 54-24 certified, black RAL 9011.
Order number **LC4-CBB**

LC4-MFD Metal Fire-dome
Metal fire dome for use with LC4 ceiling loudspeakers, includes ceramic terminal connector with cable loop-through facility, EN54-24 certified, flame red RAL 3000.
Order number **LC4-MFD**

LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker 30W

Features

- 4-inch coaxial two-way
- Waveguide coupled Ti tweeter
- Full bandwidth overload protection
- Front baffle wattage tap adjustment
- BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-4 is a 4-inch two-way Premium-sound Ceiling Loudspeaker which provides; wide dispersion, high efficiency, high maximum output, ease-of-installation, and wide-range reproduction of music and voice.
It consists of a baffle assembly, grille, back-can enclosure, 4-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.
The rear enclosure provides an optimum internal volume for extended low frequency performance.
The loudspeaker utilizes a second order crossover network at 3.3 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.
The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-4 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.
The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

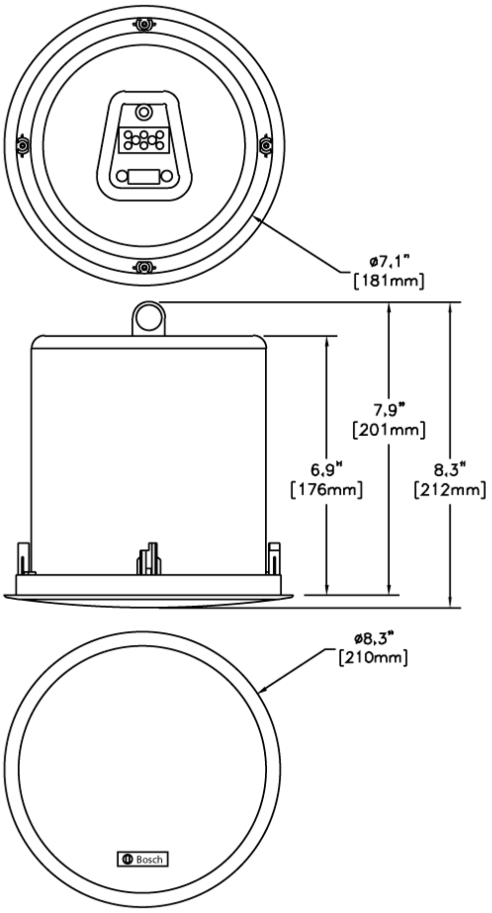
Installation/configuration notes

Mounting

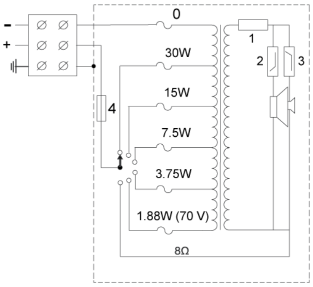
The loudspeaker is secured in ceilings using three integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.
A circular template for marking a 183 mm (7.188 in.) diameter hole is included with the loudspeaker.

Power setting

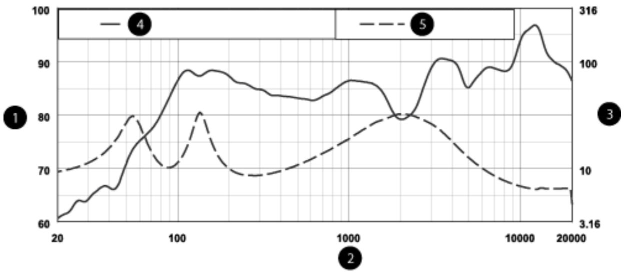
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

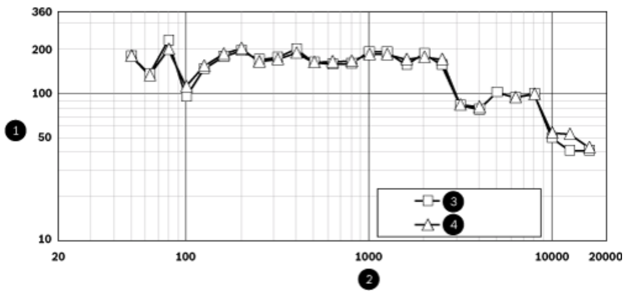


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse))



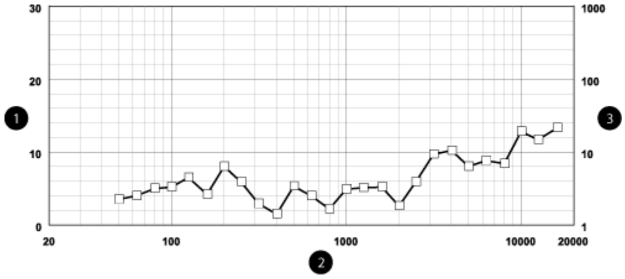
1	SPL, 1W/1m (db)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency response, half space
5	Impedance

Frequency response



1	-6dB Beamwidth (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker
1	183 mm (7.188 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	50 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	101 / 86 dB (SPL)
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Coverage (conical)	130°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm

LF transducer	100 mm (4 in.) Polypropylene cone
HF transducer	19 mm (0.75 in.) Ti Mylar laminate
Connector	3-pole screw terminal block

Mechanical

Diameter	210 mm (8.3 in)
Maximum depth	176 mm (6.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	183 + 5 mm (7.188 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	2.7 kg (6.0 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LC2-PC30G6-4 Premium-sound Ceiling Loudspeaker 30W
Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, 4-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).
Order number **LC2-PC30G6-4**

LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker 30W

Features

- 8-inch coaxial two-way
- Waveguide coupled Ti tweeter
- Full bandwidth overload protection
- Front baffle wattage tap adjustment
- BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-8 is a 8-inch two-way Premium-sound Ceiling Loudspeaker which provides; wide dispersion, high efficiency, high maximum output, ease-of-installation, and wide-range reproduction of music and voice.
It consists of a baffle assembly, grille, back-can enclosure, 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.
The rear enclosure provides an optimum internal volume for extended low frequency performance.
The loudspeaker utilizes a second order crossover network at 3.3 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.
The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-8 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.
The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

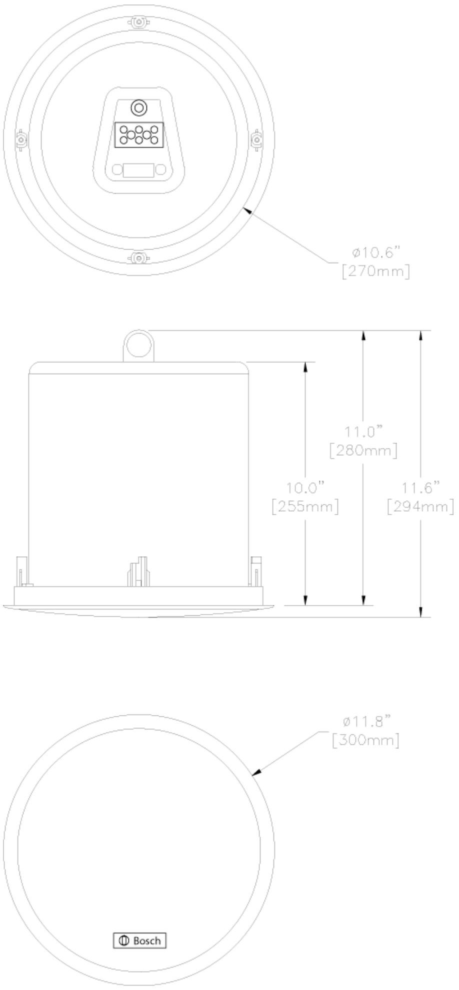
Installation/configuration notes

Mounting

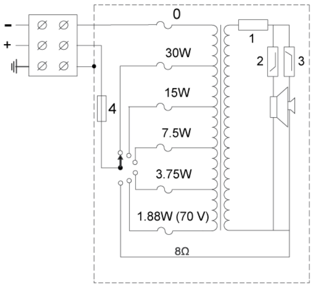
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.
A circular template for marking a 272 mm (10.75 in.) diameter hole is included with the loudspeaker.

Power setting

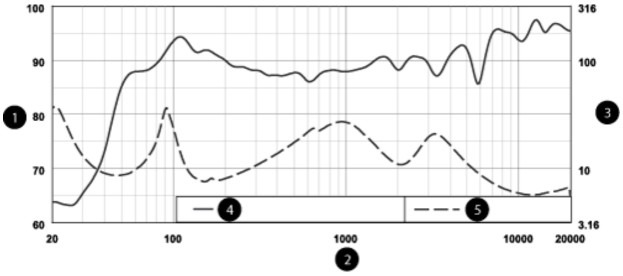
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

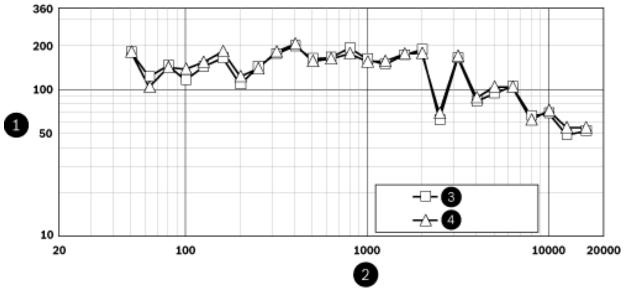


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



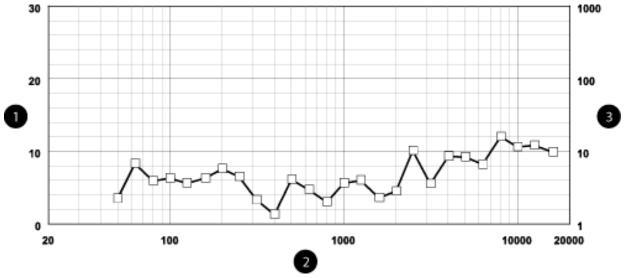
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beamwidth (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker
1	272 mm (10.75 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)
Effective frequency range (-10 dB)	50 Hz to 20 kHz

Coverage (conical)	110°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	300 mm (11.8 in)
Maximum depth	255 mm (10 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	272 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	5 kg (11 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LC2-PC30G6-8 Premium-sound Ceiling Loudspeaker 30W
Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, 8-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).
Order number **LC2-PC30G6-8**

LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker 30W

Features

- 8-inch coaxial two-way
- Waveguide coupled Ti tweeter
- Full bandwidth overload protection
- Front baffle wattage tap adjustment
- BS 5839-8 and EN 60849 compliant

The LC2-PC30G6-8L is a 8-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation, low profile install space and wide-range reproduction of music and voice.

It consists of a baffle assembly, grille, back-can enclosure 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 2.5 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC30G6-8L is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839_8 / EN 60849

Region	Certification
Europe	CE

Installation/configuration notes

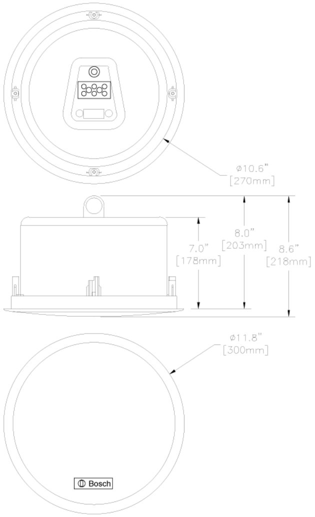
Mounting

The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.

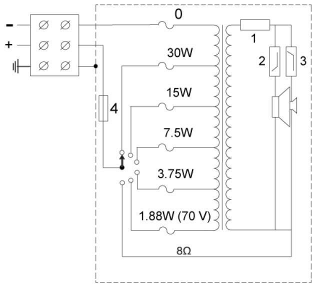
A circular template for marking a 272 mm (10.75 in.) diameter hole is included with the loudspeaker.

Power setting

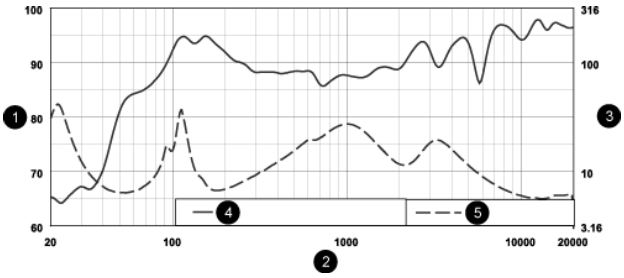
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

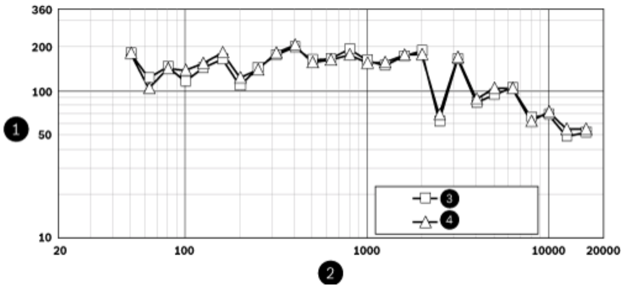


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



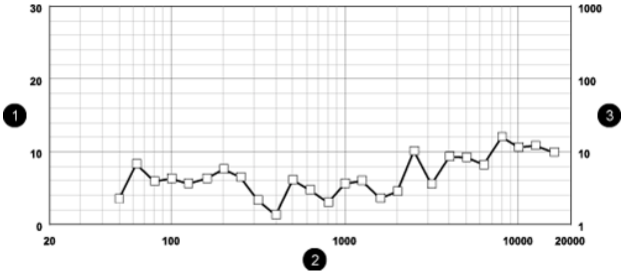
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beamwidth (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker
1	272 mm (10.75 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	30 / 15 / 7.5 / 3.75 W (1.88 W only, 70 V).
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	106 / 91 dB (SPL)
Effective frequency range (-10 dB)	50 Hz to 20 kHz
Coverage (conical)	110°
Rated voltage	70 V or 100 V
Rated impedance	167 or 333 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	300 mm (11.8 in)
Maximum depth	178 mm (7 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)

Mounting cut-out	272 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	5 kg (11 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LC2-PC30G6-8L Premium-sound Ceiling Loudspeaker 30W
Ceiling loudspeaker 30 W, circular, metal grille, integrated metal back-cover, low profile installation space, 8-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).
Order number **LC2-PC30G6-8L**

LC2-PC60G6-8H Premium-sound High Ceiling Loudspeaker 60W

Features

- 8-inch coaxial two-way with dual integrated waveguides
- Waveguide coupled Ti tweeter
- Full bandwidth overload protection
- Front baffle wattage tap adjustment
- BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-8H is an 8-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation, innovative dual waveguide that provides directivity control to 1 kHz and wide-range reproduction of music and voice.

It consists of a baffle/waveguide assembly, grille, back-can enclosure, 8-inch coax two-way loudspeaker and internal output-power matching transformer. The loudspeaker features a waveguide coupled titanium coated dome tweeter.

It provides much better music fidelity and speech intelligibility in spaces with high ceiling heights than typical flush units are capable of.

The rear enclosure provides an optimum internal volume for extended low frequency performance.

The loudspeaker utilizes a second order crossover network at 2.5 kHz, with a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

The loudspeaker can be installed optionally with the LC2-PC60G6-10 ceiling subwoofer to enhance the low frequency reproduction down to 45 Hz.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC60G6-8H is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.

The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

Installation/configuration notes

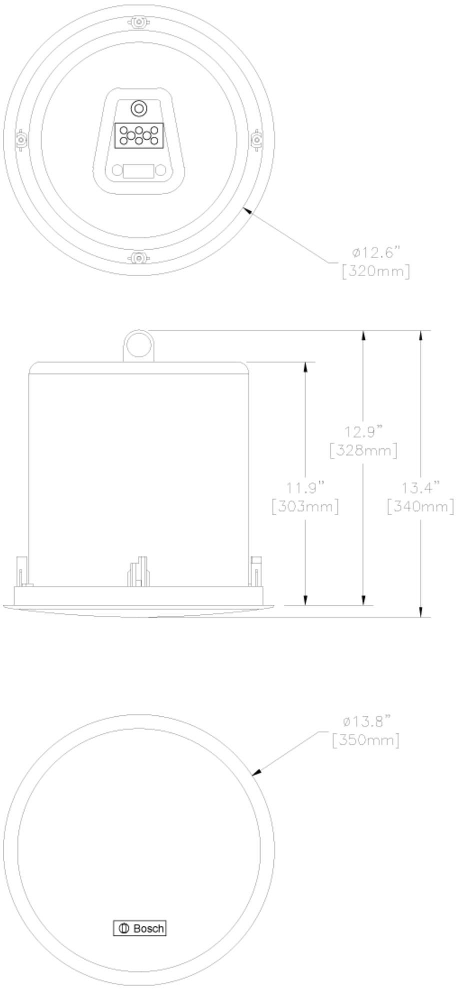
Mounting

The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.

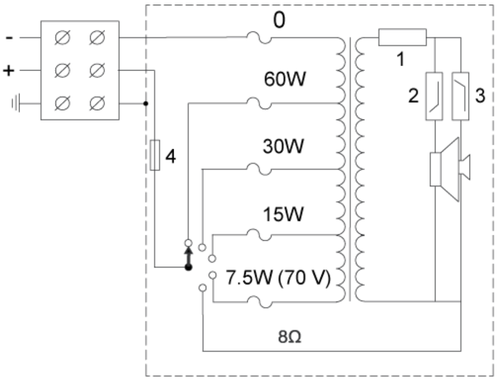
A circular template for marking a 322 mm (12.625 in.) diameter hole is included with the loudspeaker.

Power setting

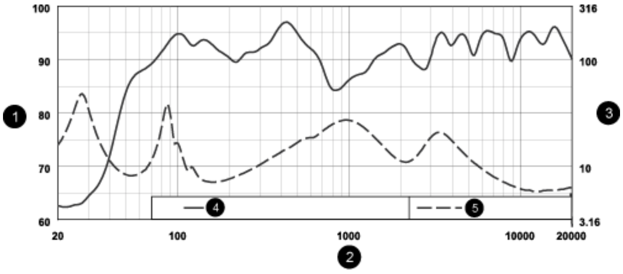
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Three 100 V, and four 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

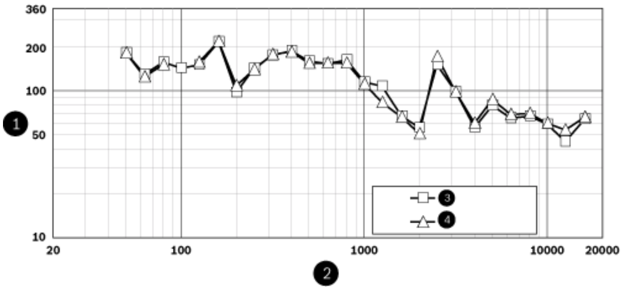


Circuit diagram (1: Passive Limiter, 2: Low Pass Filter, 3: High Pass Filter, 4: Thermal fuse)



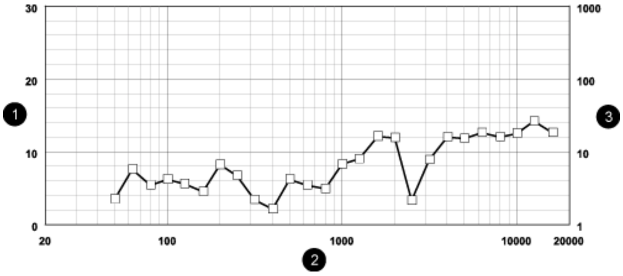
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beam width (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC60G6-8H Premium-sound Ceiling Loudspeaker
1	322 mm (12.625 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	75 W
Rated power	60 / 30 / 15 / (7.5 W only, 70 V).
Sound pressure level at 60 W / 1 W (1 kHz, 1 m)	111 / 93 dB (SPL)
Effective frequency range (-10 dB)	50 Hz to 20 kHz

Coverage (conical)	75° (above 1kHz)
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
LF transducer	200 mm (8 in.) Polypropylene cone
HF transducer	25 mm (1 in.) Ti Mylar laminate
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	350 mm (13.8 in)
Maximum depth	303 mm (11.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	322 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	6 kg (13.2 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

Ordering information

LC2-PC60G6-8H Premium-sound High Ceiling Loudspeaker 60W
Ceiling loudspeaker 60 W, circular, metal grille, integrated metal back-cover, 8-inch coax (two-way system) driver with dual integrated waveguides, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring (set of 2 pieces).
Order number **LC2-PC60G6-8H**

LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker 60W

Features

- 10-inch high-excursion loudspeaker for extended LF
- Low pass network with overload protection
- Front baffle wattage tap adjustment
- Includes tile bridge and mounting ring for easy installation
- BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-10 is an 10-inch Premium-sound Subwoofer Ceiling Loudspeaker which is designed to augment the low frequency response of any LC2 Premium-sound full range ceiling loudspeaker.
It consists of a baffle assembly, grille, back-can enclosure, 10-inch coax high-excursion LF loudspeaker and internal output-power matching transformer.
The rear enclosure and loudspeaker provides an optimum internal volume for extended low frequency performance.
The loudspeaker utilizes a second order crossover network to provide the correct band-pass frequency response for use with any LC2 Premium-sound full range ceiling loudspeaker.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC60G6-10 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.
The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

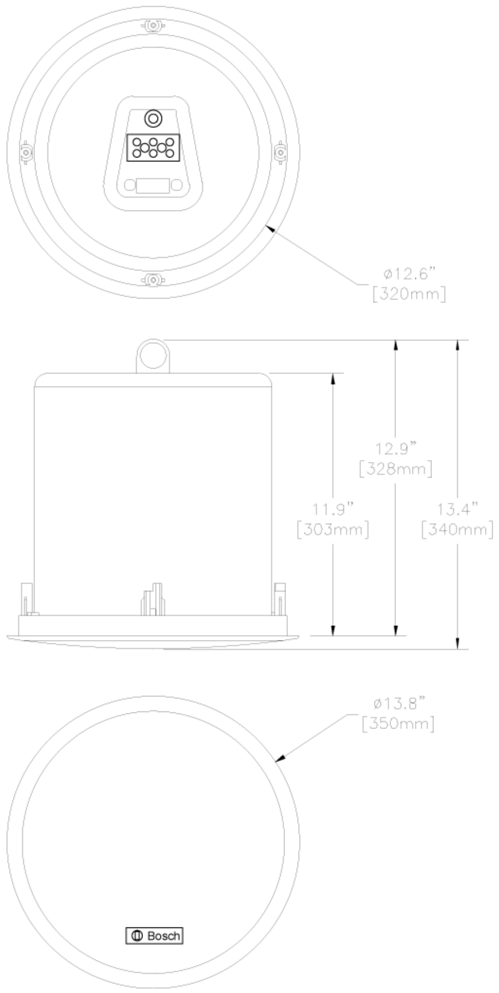
Installation/configuration notes

Mounting

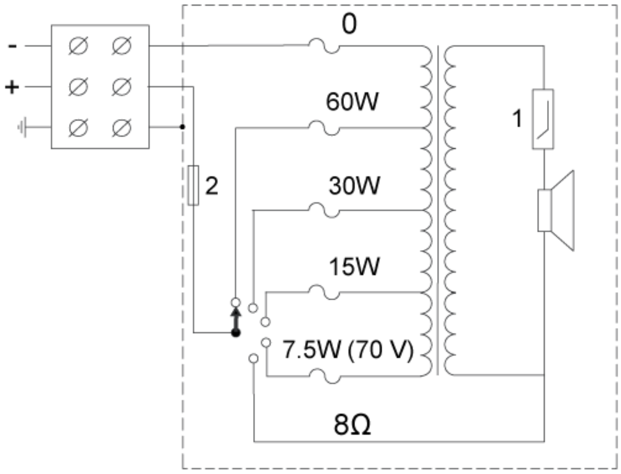
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions.
A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.
A circular template for marking a 322 mm (12.625 in.) diameter hole is included with the loudspeaker.

Power setting

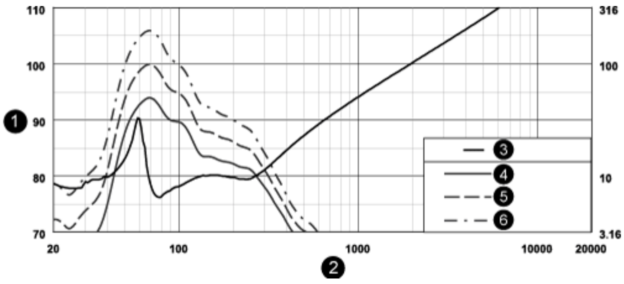
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. three 100 V, and four 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]



Circuit diagram (1: Low Pass Filter, 2: Thermal fuse)



1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency response, half space
5	Frequency response, quarter space
6	Frequency response, eight space

Frequency response

Parts included

Quantity	Components
1	LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker
1	322 mm (12.625 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	100 W
Rated power	60 / 30 / 15 / (7.5 W only, 70 V).
Sound pressure level at 60 W / 1 W (70 Hz, 1 m)	112 / 94 dB (SPL)
Effective frequency range (-10 dB)	45 Hz to 150 Hz
Coverage (conical)	180°
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
LF transducer	254 mm (10 in.) Polypropylene cone
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	350 mm (13.8 in)
Maximum depth	303 mm (11.9 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	322 + 5 mm (10.75 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	7 kg (15.5 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LC2-PC60G6-10 Premium-sound Subwoofer Ceiling Loudspeaker 60W
Subwoofer ceiling loudspeaker 60 W, 10-inch high-excursion driver, low pass network with overload protection, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010 (set of 2 pieces).
Order number **LC2-PC60G6-10**

LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker 64W

Features

- High efficiency 12-inch coaxial two-way driver
- Full bandwidth overload protection
- Front baffle wattage tap adjustment
- Includes tile bridge and mounting ring for easy installation
- BS 5839-8 and EN 60849 compliant

The LC2-PC60G6-12 is a 12-inch two-way Premium-sound Ceiling Loudspeaker which provides, wide dispersion, high efficiency, high maximum output, ease-of-installation and wide-range reproduction of music and voice. It is intend for high ceiling applications.
It consists of a baffle assembly, grille, back-can enclosure, 12-inch coax two-way loudspeaker and internal output-power matching transformer.
The rear enclosure provides an optimum internal volume for extended low frequency performance.
The loudspeaker utilizes a comprehensive protection circuit to protect the network, woofer, and tweeter drivers from excessive power levels.

Functions

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal evacuation announcements is governed by regulations. The LC2-PC60G6-12 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

Protection

The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. It is standard fitted with a back-can enclosure to increase protection of the cable termination.
The loudspeaker has an emergency compliant ceramic screw-terminal block and thermal fuse.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	according to EN 60065
Emergency	according to BS 5839-8 / EN 60849

Region	Certification
Europe	CE

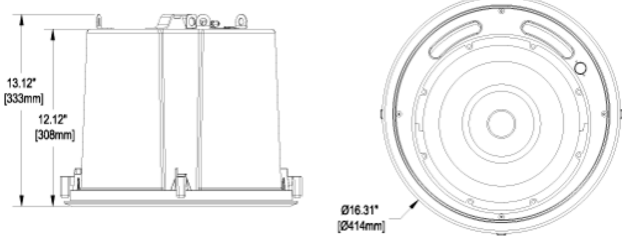
Installation/configuration notes

Mounting

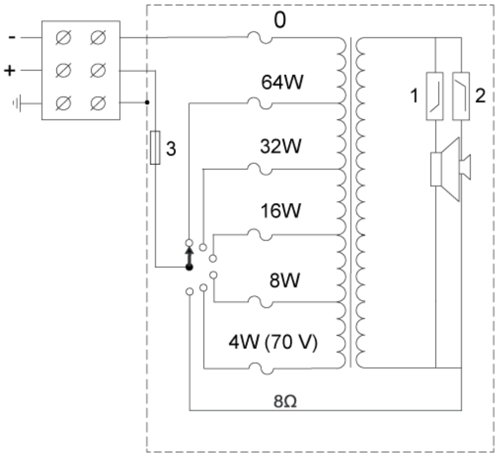
The loudspeaker is secured in ceilings using four integral toggle anchors, and has been designed to work together in a wide range of different ceiling constructions. A tile bridge / C-ring is included for safe suspension in a drop ceiling that uses mineral wool, or other fiber-based ceiling tiles from 4 to 25 mm (0.16 to 1.0 in.) thick.
The LC2-PC60G6-12 can be suspended in open ceiling installations by an integrated 3/8-inch rigging point for use with threaded rod, or it can be mounted using the three pendant mount tabs on the rear enclosure.
A circular template for marking a 386 mm (15.20 in.) diameter hole is included with the loudspeaker.

Power setting

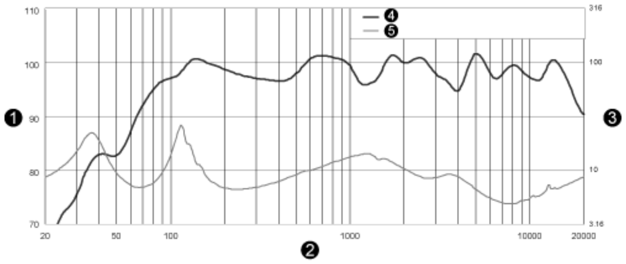
The unit has a three-way emergency compliant ceramic terminal block with screw connections (including earth) suitable for loop-through wiring. Four 100 V, and five 70 V, primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power, quarter-power, eighth-power radiation (in 3 dB steps) and eight ohm. Selection is done via a convenient switch on the front baffle.



Dimensions in Inch / [mm]

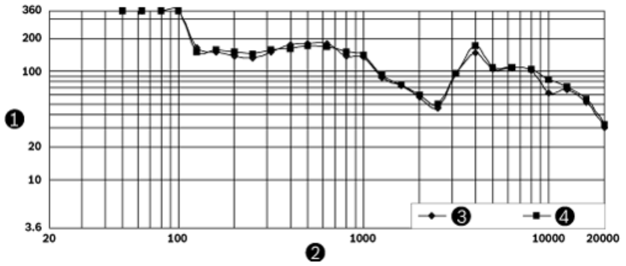


Circuit diagram (1: Low Pass Filter, 2: High Pass Filter, 3: Thermal fuse)



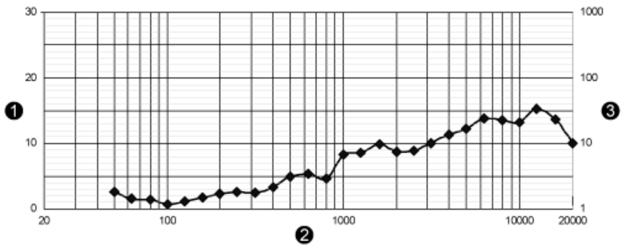
1	SPL, 1W/1m (dB)
2	Frequency (Hz)
3	Impedance (Ohms)
4	Frequency Response, half space
5	Impedance

Frequency response



1	-6dB Beam width (degrees)
2	Frequency (Hz)
3	Horizontal
4	Vertical

Beam width



1	Directivity Index (DI), dB
2	Frequency (Hz)
3	Directivity Factor (Q)

Directivity

Parts included

Quantity	Components
1	LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker
1	386 mm (15.20 in.) circular cut-out template
1	Tile bridge / C-ring
1	Paint shield
1	Installation instruction

Technical specifications

Electrical

Maximum power	100 W
Rated power	64 / 32 / 16 / 8 / (4 W only, 70 V).
Sound pressure level at 64 W / 1 W (1 kHz, 1 m)	118 / 100 dB (SPL)
Effective frequency range (-10 dB)	65 Hz to 20 kHz
Crossover frequency	2 kHz
High-pass frequency	60 Hz
Rated voltage	70 V or 100 V
Rated impedance	83 or 167 or 8 ohm
Coax transducer	305 mm (12 in.)
Connector	3-pole ceramic screw terminal block

Mechanical

Diameter	414 mm (16.31 in)
Maximum depth	333 mm (13.12 in)
Ceiling thickness	4 to 25 mm (0.16 to 1.00 in.)
Mounting cut-out	386 + 5 mm (15.20 + 0.20 in.)
Material	
Baffle	ABS (UL94V0)
Back-can	Zinc-plated steel
Grille	Powder coated steel
Weight	13.3 kg (29.3 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LC2-PC60G6-12 Premium-sound Ceiling Loudspeaker 64W
Ceiling loudspeaker 64 W, circular, metal grille, integrated metal back-cover, 12-inch coax (two-way system) driver, 3-way ceramic screw terminal block, supplied with tile bridge/C-ring, white RAL 9010.
Order number **LC2-PC60G6-12**

LBC 3941/11 Sound Projector

Features

- Excellent speech and music reproduction
- Very wide opening angle
- Modern unobtrusive styling
- Simple power setting
- Splash – waterproof

The LBC 3941/11 is a 6 W cost-effective sound projector. It features a very wide opening angle and unobtrusive styling. Water and dust protection to IP 65 make it suitable for indoor and outdoor use.

Functions

The sound projector features a very wide opening angle (90 degrees) which means fewer units are required to cover a given area. Its wide frequency range also results in better speech and music reproduction, while the directivity ensures that the sound is accurately projected to where it is needed most.

The LBC 3941/11 sound projector is finished in an attractive white color, and its unobtrusive appearance complements today's interior lighting. The color and styling of the front grille matches an existing Bosch ceiling loudspeaker (LBC 3951/11).

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

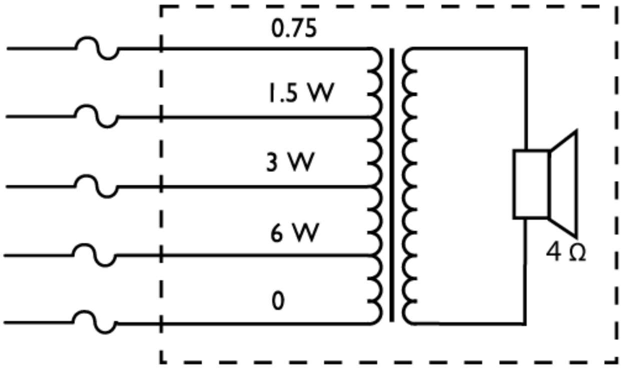
The enclosures are made from high-impact self-extinguishing ABS (according to class UL 94 V0).

Safety	acc. to EN 60065
Water and dust protection	acc. to EN 60529, IP 65
Self-Extinguishing	acc. to UL 94 V0

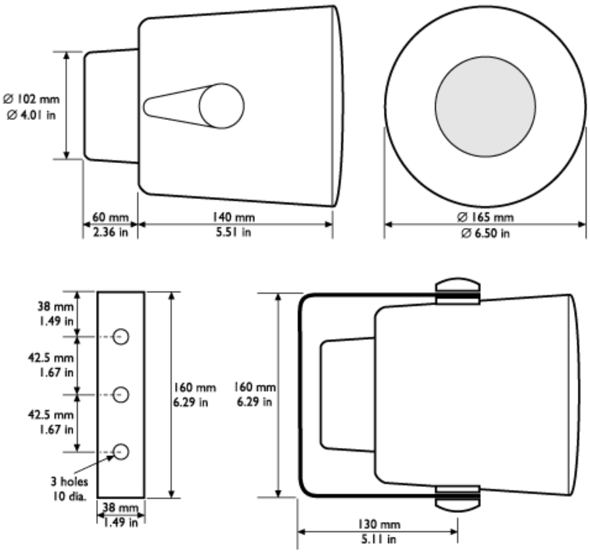
Region	Certification
Europe	CE

Installation/configuration notes

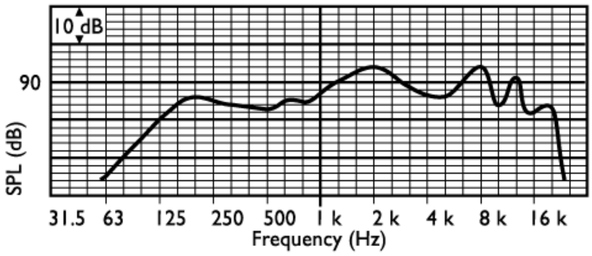
The sound projector is supplied with a steel mounting bracket painted in white. The bracket has three 10 mm holes, which can be used to easily mount the projector to walls and ceilings. The direction of the projector can be adjusted by means of two screws covered with white plastic covers. The unit is supplied with a 2 m color-coded five-core cable, with each color connected to a different primary tap on the matching transformer. This makes it easy to select full-power, half-power, quarter-power and eighth-power radiation without opening the unit during installation.



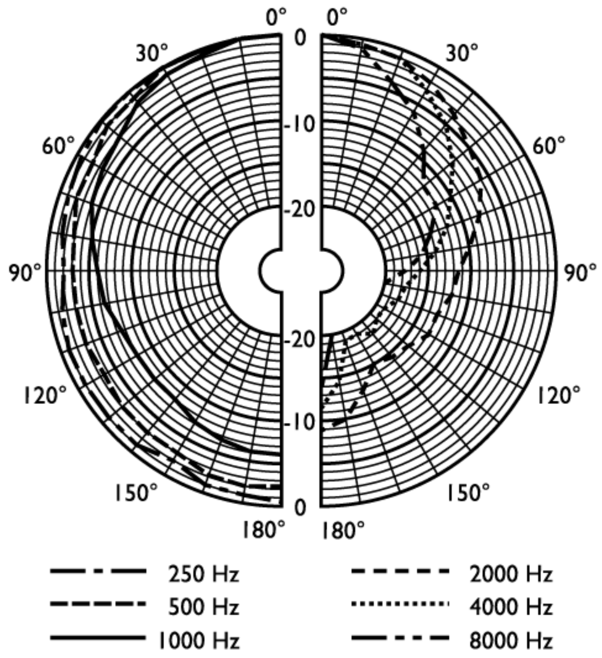
Circuit diagram



Dimensions in mm (in)



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	82	84	83	88	92	88	88
SPL max.	90	92	91	96	100	96	96
Q-factor	1.2	1.2	1.6	2.9	5.1	8.5	18
Efficiency	0.17	0.26	0.16	0.28	0.39	0.09	0.04
H. angle	360	360	360	180	120	90	60
V. angle	360	360	360	180	120	90	60

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	9 W
Rated power	6 / 3 / 1.5 / 0.75 W
Sound pressure level at 6 W / 1 W (1 kHz, 1 m)	96 dB / 88 dB (SPL)
Sound pressure level at 6 W / 1 W (2 kHz, 1 m)	100 dB / 92 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 18 kHz
Rated voltage	100 V
Rated impedance	1667 ohm
Connection	2 m 5-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	165 x 200 mm (6.50 x 7.87 in)
Speaker diameter	100 mm (4 in)
Weight	1.5 kg (3.3 lb)
Color	White (RAL 9010)
Magnet weight	101 g (3.57 oz)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3941/11 Sound Projector
Sound projector 6 W, white ABS enclosure, wide opening angle, water and dust protected IP65, fixed 2 m connection cable.
Order number **LBC3941/11**

LBC 3094/15 Sound Projector

Features

- Suitable for speech and music reproduction
- Simple power setting
- 2 m fixed connection cable
- Splash-waterproof
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3094/15 is a sound projector for speech and music reproduction in indoor or outdoor applications such as shopping centers, factory grounds and sports fields.

Functions

Sound projectors are intended for applications where directing the sound beam is desirable. Similar in concept to a spotlight, a sound projector can be used to provide localized sound reproduction. Typical examples include restaurants, exhibitions, factory grounds and shopping centers.
The sound projectors are splash waterproof and suitable for outdoor use and in environments with high humidity levels such as swimming pools.
The enclosures are made from high-impact self-extinguishing ABS (acc. to class UL 94 V0). The sound projector enclosures are colored off-white and supplied with steel mounting brackets painted in off-white. They are suitable for mounting onto walls or ceilings.

Certifications and approvals

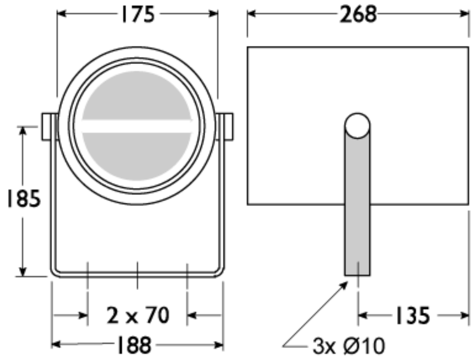
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94 V0). In common with all Bosch products, care is taken to meet high safety standards. These sound projectors comply with all the relevant safety and installation regulations of EN 60065.

Water and dust protection	acc. to EN 60529, IP 63

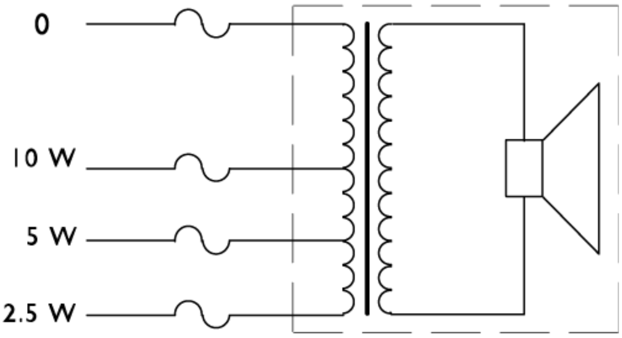
Region	**Certification**
Europe	CE

Installation/configuration notes

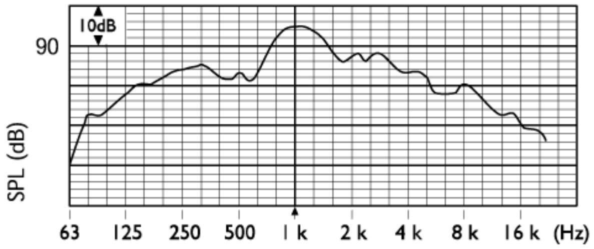
All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



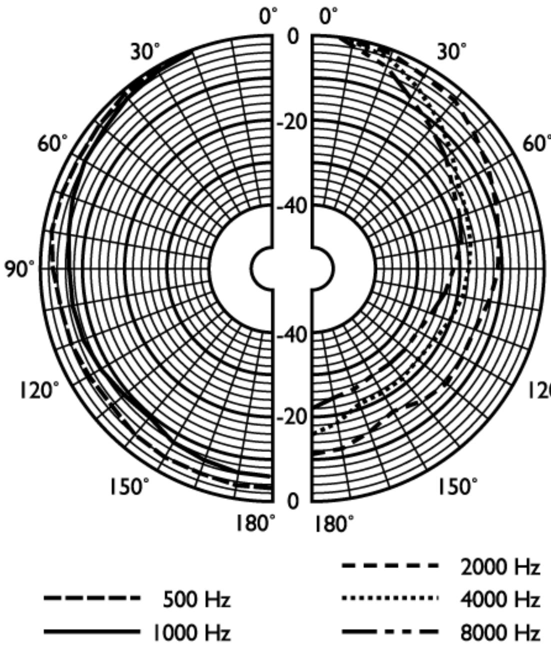
Dimensions in mm



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	81	82	85	92	89	87	79
SPL max.	91	92	95	102	99	97	89
Q-factor	1.2	1.3	1.8	3.1	5.9	20	32
Efficiency	0.1	0.1	0.2	0.6	0.2	0.03	0.01
H. angle	360	360	360	160	105	70	40
V. angle	360	360	360	160	105	70	40

Acoustical performance specified per octave

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	102 dB / 92 dB (SPL)
Effective frequency range (-10 dB)	140 Hz to13 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 70°
Rated voltage	100 V
Rated impedance	1000 ohm
Connection	2 m 4-wire cable

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	175 x 268 mm (6.9 x 10.5 in)
Weight	2.5 kg (7.3 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3094/15 Sound Projector
Sound projector 10 W, white ABS enclosure, water and dust protected IP63, fixed 2 m connection cable.
Order number **LBC3094/15**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3095/15 Pendant Sphere Loudspeaker

Features

- Suitable for speech and music reproduction
- Simple power setting
- 5 m fixed connection cable
- Splash-waterproof type
- Robust self-extinguishing ABS enclosure to UL 94 V0

The LBC 3095/15 is a pendant sphere designed to be suspended from the ceiling via its connecting cable. The pleasing shape and neutral color make the pendant sphere models interesting architectural features in their own right.

Functions

The pendant sphere is splash waterproof and suitable for outdoor use and in environments with high humidity levels such as swimming pools.
Their excellent sound spread makes them ideal for use in buildings with high ceilings such as hypermarkets and superstores.
The enclosures are made from high-impact self-extinguishing ABS (according to class UL 94 V0) and are colored off-white. The pendant sphere is designed to be suspended from its color-matched connecting cable (easy to shorten for desired height). A cable clamp and ceiling cover are supplied.
They are not recommended for use in windy environments.

Certifications and approvals

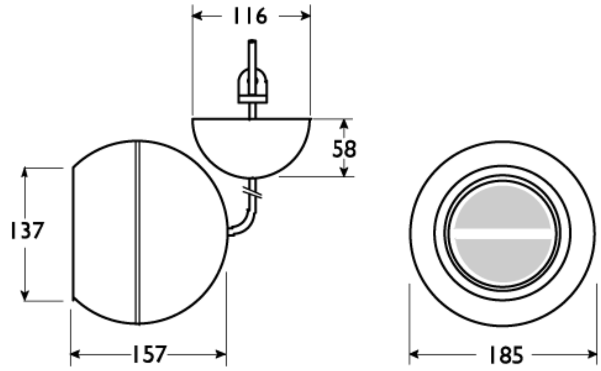
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.
All plastic parts are manufactured from self-extinguishing high-impact ABS material (according to UL 94 V0). In common with all Bosch products, care is taken to meet high safety standards. These sound projectors comply with all the relevant safety and installation regulations of EN 60065.

Water protected	acc. to EN 60529, IP 63

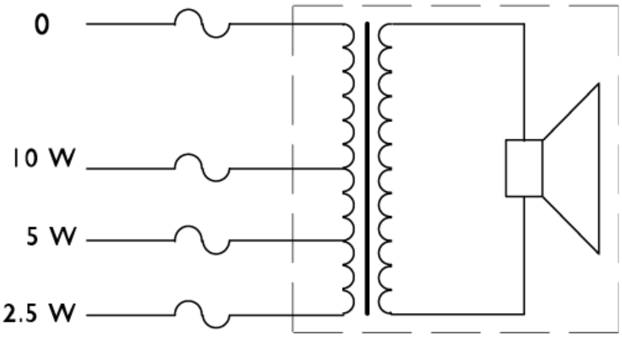
Region	Certification
Europe	CE

Installation/configuration notes

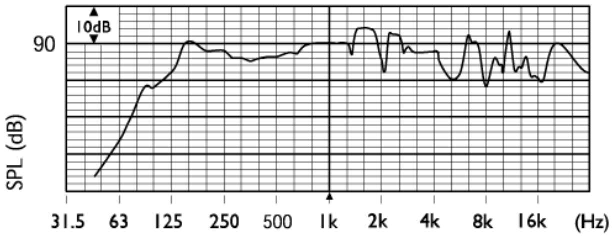
All units are supplied with a color-coded four-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power or quarter-power radiation to be selected (in 3 dB steps).



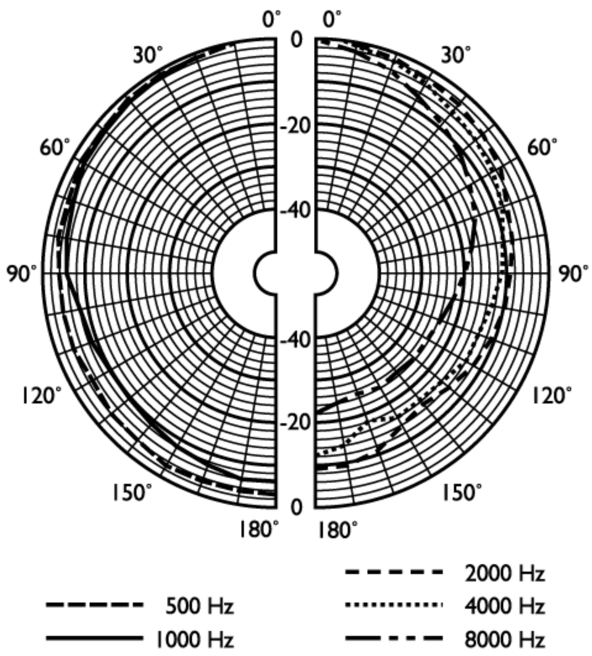
Dimensions (in mm)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	80	85	84	89	89	85	85
SPL max.	90	95	94	99	99	95	95
Q-factor	1.2	1.3	1.8	3.1	5.2	8.5	18
Efficiency	0.1	0.3	0.2	0.3	0.2	0.05	0.02
H. angle	360	360	360	180	125	90	55
V. angle	360	360	360	180	125	90	55

Acoustical performance specified per octave

Parts included

Quantity	Components
1	LBC 3095/15
1	Cable clamp
1	Ceiling cover

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 W
Sound pressure level at 10 W / 1 W (1 kHz, 1 m)	99 dB / 89 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 90°
Effective frequency range (-10 dB)	130 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connection	5 m 4-wire cable

Mechanical

Dimensions (D x L)	185 x 157 mm (7.3 x 6.2 in)
Weight	2.5 kg (5.5 lb)
Color	White (RAL 9010)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3095/15 Pendant Sphere Loudspeaker
Pendant sphere,10 W, white ABS enclosure, wide opening angle, water and dust protected IP63, fixed 5 m connection cable, cable clamp, and ceiling cover included.
Order number **LBC3095/15**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LP1-BC10E-1 Bidirectional Sound Projector

Features

- Superb speech and music reproduction
- Integrated connection cable
- Ceiling or wall mounting
- Water and dust protected to IP 65
- EN 54-24 certified

The LP1-BC10E-1 is a powerful 10 W bidirectional sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The two loudspeakers facing in opposite directions are ideally suited to applications such as tunnels, long corridors and shopping arcades. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality
The use of high-quality drivers in combination with advanced filtering has resulted in a very natural sound reproduction.

Voice alarm loudspeaker
Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-BC10E-1 is designed for use in voice alarm systems. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board externally mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V 0, finished in white.

Certifications and approvals

Quality assurance
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety aspects
In common with all Bosch products, care is taken to meet high safety standards. This sound projector complies with the relevant safety and installation regulations of EN 60065. All ABS parts are self-extinguishing (according to UL 94 V 0)

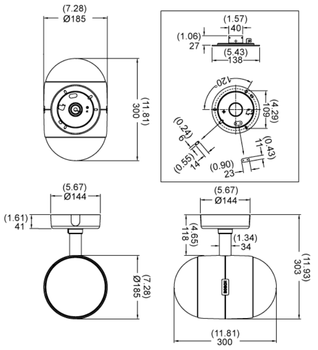
Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

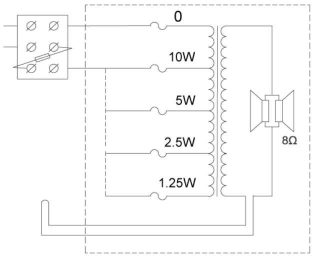
Installation/configuration notes

Mounting
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate by means of a fixing screw nut and the horizontal direction can be fixed. A cover plate covers screws and electrical wiring. The versatile mounting bracket allows the sound projector to be horizontal directed. The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

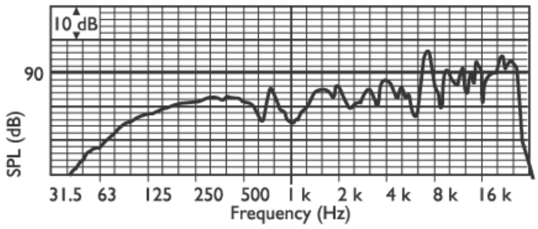
Power setting
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color coded wire to the terminal block.


(7.28)
Ø185
(1.57)
40
(1.06)
27
(5.43)
138
120°
(4.29)
109
(11.81)
300
(0.24)
6
(0.55)
14
(0.90)
23
(0.43)
11
(5.67)
Ø144
(1.61)
41
(7.28)
Ø185
(5.67)
Ø144
(4.65)
118
(1.34)
34
(11.93)
303
(11.81)
300

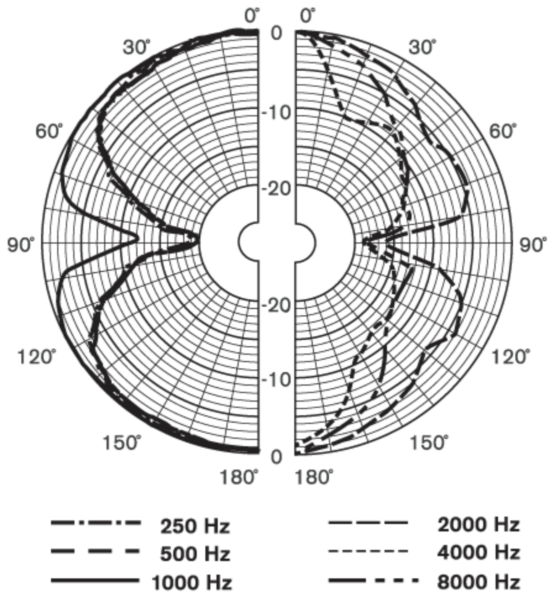
Dimensions in mm / (in)


0
10W
5W
2.5W
1.25W
8Ω

Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	75.4	-	-
250 Hz	80.3	-	-
500 Hz	81.3	-	-
1000 Hz	80.5	-	-
2000 Hz	83.5	-	-
4000 Hz	85.4	-	-
8000 Hz	89.2	-	-
A-weighted	-	83.0	92.4
Lin-weighted	-	85.3	93.5

Octave band opening angles

	Horizontal	Vertical
125 Hz	120	120
250 Hz	120	120
500 Hz	132	132
1000 Hz	162	162
2000 Hz	153	153
4000 Hz	62	62
8000 Hz	35	35

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 / 1.25 W
Sound pressure level at 10 W / 1 W (1kHz, 1 m)	90 dB / 80 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	165° / 60°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connector	3-pole screw terminal

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 297 mm (7.3 x 11.7 in)
Weight	3 kg (6.6 lb)

Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Bidirectional Sound Projector 10W
LP1-BC10E-1
Type B

Ordering information

LP1-BC10E-1 Bidirectional Sound Projector
Sound projector 10 W, bidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.
Order number **LP1-BC10E-1**

LP1-UC10E-1 Unidirectional Sound Projector

Features

- Superb speech and music reproduction
- Integrated connection cable
- Ceiling or wall mounting
- Water and dust protected to IP 65
- EN 54-24 certified

The LP1-UC10E-1 is a powerful, 10 W sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality

The use of a high-quality driver in combination with advanced filtering has resulted in a very natural sound reproduction with excellent bass response.

Voice alarm loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-UC10E-1 is designed for use in voice alarm systems. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board external mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.
The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V0, finished in white.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety aspects

In common with all Bosch products, care is taken to meet high safety standards. All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

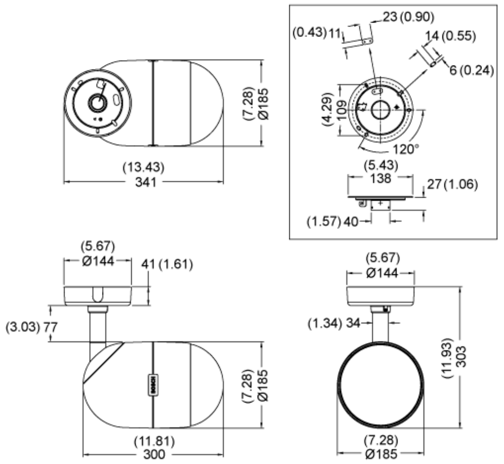
Installation/configuration notes

Mounting

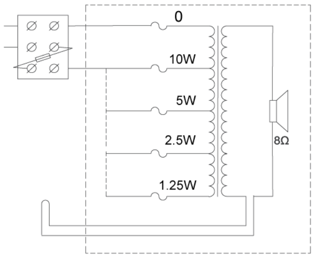
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate, by means of a fixing screw nut, and the horizontal direction can be fixed. A cover plate covers screws and electrical wiring. The versatile mounting bracket allows the sound projector to be horizontal and vertical directed. The vertical direction can be permanent fixed with a recessed socket head screw via a small hole located in the rear housing The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

Power setting

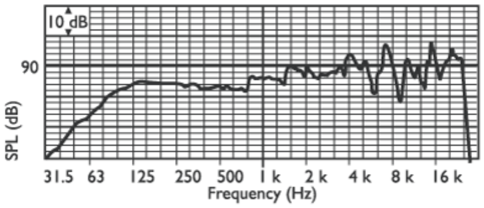
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color-coded wire to the terminal block.


(7.28)
Ø185
(13.43)
341
(0.43) 11
23 (0.90)
14 (0.55)
6 (0.24)
(4.29)
109
120°
(5.43)
138
27 (1.06)
(1.57) 40
(5.67)
Ø144
41 (1.61)
(3.03) 77
(7.28)
Ø185
(11.81)
300
(5.67)
Ø144
(1.34) 34
(11.93)
303
(7.28)
Ø185

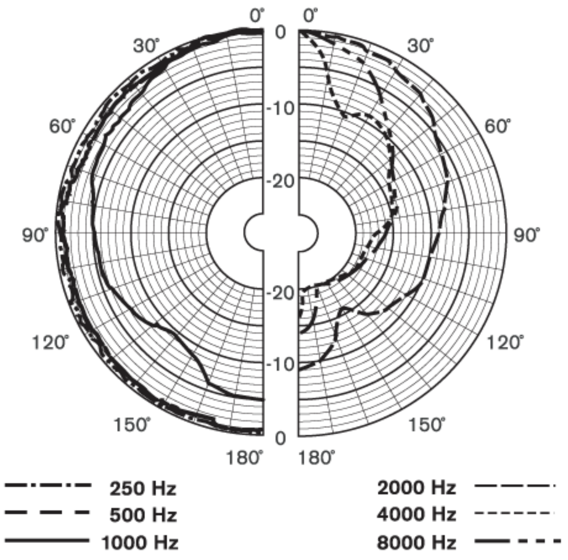
Dimensions in mm / (in)


0
10W
5W
2.5W
1.25W
8Ω

Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity*

	Octave SPL	Total octave SPL	Total octave SPL
	1W/1m	1W/1m	Pmax/1m
125 Hz	84.0	-	-
250 Hz	84.3	-	-
500 Hz	84.4	-	-
1000 Hz	86.0	-	-
2000 Hz	89.4	-	-
4000 Hz	91.1	-	-
8000 Hz	94.3	-	-
A-weighted	-	88.2	97.7
Lin-weighted	-	89.9	98.8

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	224	224	
2000 Hz	124	124	
4000 Hz	63	63	
8000 Hz	35	35	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Technical specifications

Electrical*

Maximum power	15 W
Rated power	10 / 5 / 2.5 / 1.25 W
Sound pressure level at 10 W / 1 W (1kHz, 1 m)	96 dB / 86 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	1000 ohm
Connector	3-pole screw terminal

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 300 mm (7.3 x 11.8 in.)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Unidirectional Sound Projector 10W
LP1-UC10E-1
Type B

Ordering information

LP1-UC10E-1 Unidirectional Sound Projector
Sound projector 10 W, unidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.
Order number **LP1-UC10E-1**

LP1-UC20E-1 Unidirectional Sound Projector

Features

- Superb speech and music reproduction
- Integrated connection cable
- Ceiling or wall mounting
- Water and dust protected to IP 65
- EN 54-24 certified

The LP1-UC20E-1 is a powerful 20 W sound projector intended for high quality speech and music reproduction in indoor and outdoor applications. The state-of-the-art design is matched to both modern and traditional style environments. The sound projector is suitable for use in voice alarm systems.

Functions

Superb sound quality
The use of a high-quality driver in combination with advanced filtering has resulted in a very natural sound reproduction with excellent bass response.

Voice alarm loudspeaker
Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LP1-UC20E-1 is designed for use in voice alarm systems, is EN 54-24 certified and compliant with BS 5839-8 and EN 60849. The sound projector is pre-wired for use with an optional line/loudspeaker supervision board external mounted. The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is made from high-impact self-extinguishing ABS according to class UL 94 V 0, finished in white.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life and lessons the chance of failure or performance deterioration.

Safety aspects
In common with all Bosch products, care is taken to meet high safety standards.
All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

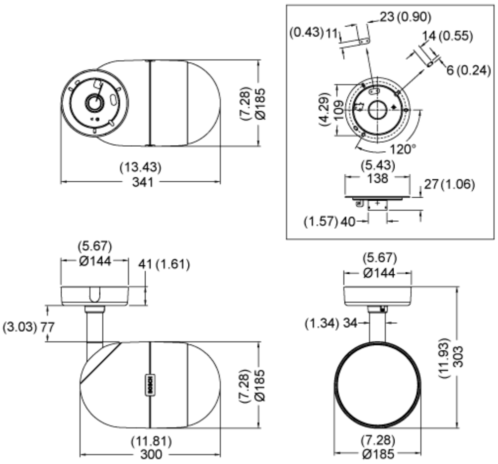
Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

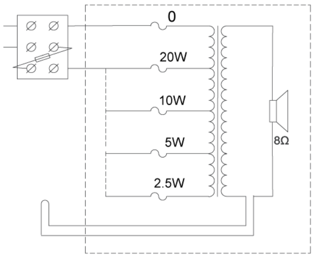
Installation/configuration notes

Mounting
Ease of installation is realized in the way of mounting: first the mounting plate is fixed to the wall or ceiling, secondly a safety cord is attached to the mounting plate, allowing the installer temporarily hang the loudspeaker during installation. After making the connections, the sound projector can be fixed to the mounting plate, by means of a fixing screw nut, and the horizontal direction can be fixed. A cover plate covers screws and wiring. The versatile mounting bracket allows the sound projector to be horizontal and vertical directed. The vertical direction can be permanent fixed with a recessed socket head screw via a small hole located in the rear panel. The cover plate is provided with two cable – or 16 mm (0.63 inch) conduit entries (covered as standard supplied) in opposite position, suitable for loop-through cabling.

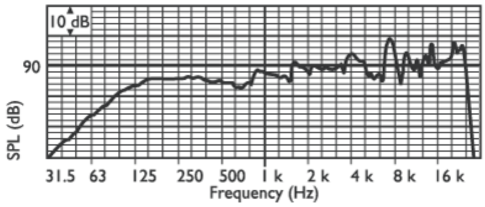
Power setting
A ceramic terminal for electrical connection is provided. The loudspeaker is standard connected to full power. Half-power, quarter-power or eighth-power can be selected by connecting the appropriate color-coded wire to the terminal block.


(7.28)
Ø185
(13.43)
341
(0.43) 11
23 (0.90)
14 (0.55)
6 (0.24)
(4.29)
109
120°
(5.43)
138
27 (1.06)
(1.57) 40
(5.67)
Ø144
41 (1.61)
(3.03) 77
(7.28)
Ø185
(11.81)
300
(5.67)
Ø144
(1.34) 34
(11.93)
303
(7.28)
Ø185

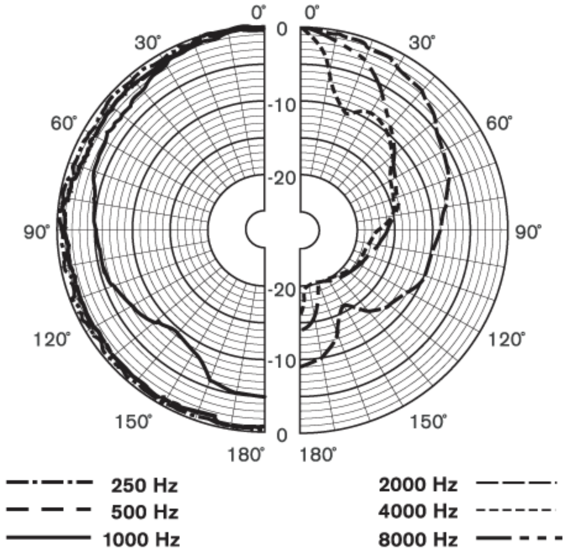
Dimensions in mm / (in)


0
20W
10W
5W
2.5W
8Ω

Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.5	-	-
250 Hz	85.5	-	-
500 Hz	84.7	-	-
1000 Hz	87.2	-	-
2000 Hz	90.2	-	-
4000 Hz	92.1	-	-
8000 Hz	95.9	-	-
A-weighted	-	89.4	101.0
Lin-weighted	-	91.3	102.3

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	226	226	
2000 Hz	124	124	
4000 Hz	65	65	
8000 Hz	34	34	

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Technical specifications

Electrical*

Maximum power	30 W
Rated power	20 / 10 / 5 / 2.5 W
Sound pressure level at 20 W / 1 W (1kHz, 1 m)	100 dB / 87 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	75 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	500 ohm
Connector	3-pole screw terminal

* Technical performance data accordance to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 300 mm (7.3 x 11.8 in.)
Weight	3 kg (6.6 lb)

Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 °C to +55 °C (-13 °F to +131 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Unidirectional Sound Projector 20W
LP1-UC20E-1
Type B

Ordering information

LP1-UC20E-1 Unidirectional Sound Projector
Sound projector 20 W, unidirectional, white ABS enclosure with metal grilles, water and dust protected IP65, EN54-24 certified, white RAL 9010.
Order number **LP1-UC20E-1**

LS1-UC20E-1 Pendant Sphere Loudspeaker

Features

- Superb speech and music reproduction
- 5 m connection cable
- Provision for optional safety cord
- Water and dust protected to IP 65
- EN 54-24 certified

Sound spheres are pendant sound projectors designed to be suspended from the ceiling by their connecting cables. Their excellent sound spread makes them ideal for use in buildings with high ceilings, such as hypermarkets and superstores.
The LS1-UC20E-1 is a powerful 20 W pendant sphere loudspeaker, intended for high quality speech and music reproduction. The state-of-the-art design is matched to both modern and traditional style environments. The loudspeaker is suitable for use in voice evacuation systems.

Functions

Voice Alarm Loudspeaker

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LS1-UC20E-1 is designed for use in voice alarm systems and is EN 54-24 certified and compliant with BS 5839-8 and EN 60849.
The loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker is supplied with a ceramic terminal block and thermal fuse.

Superb Sound Quality

The use of a high-quality driver in combination with advanced filtering, have resulted in a very natural sound reproduction with excellent bass response.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety Aspects

In common with all Bosch products, care is taken to meet high safety standards. All ABS parts are self-extinguishing (according to UL 94 V 0). This sound projector complies with the relevant safety and installation regulations of EN 60065.

Water and dust protection	according to IEC 60529, IP 65
Emergency	according to EN 54-24 / BS 5839-8 / EN 60849

Region	Certification
Europe	CE
	CPD

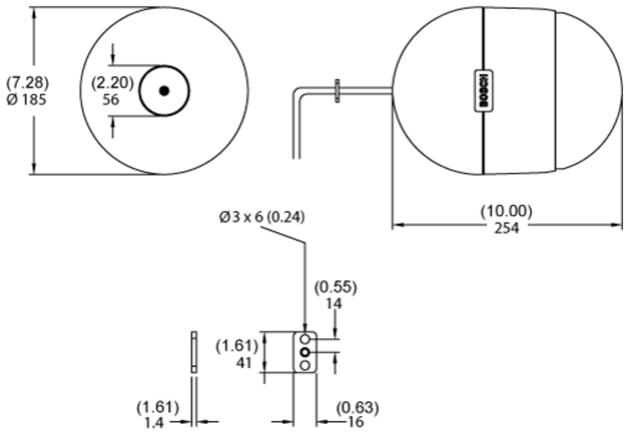
Installation/configuration notes

Mounting

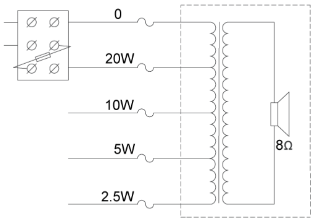
The loudspeaker is suspended from the ceiling via its five meter, five-core connecting cable, which is easy to shorten for the desired height. For optional safety, a steel safety cord can be attached.

Power Setting

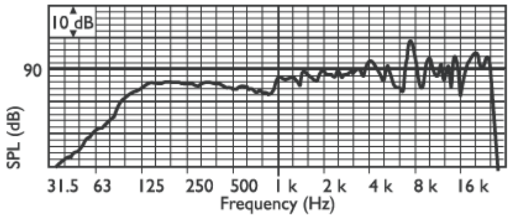
The loudspeaker is supplied with a five meter color-coded, five-core connecting cable with each color connected to a different primary tap on the 100 V matching transformer. This allows nominal full-power, half-power, quarter-power or eighth-power radiation to be selected (in 3 dB steps).



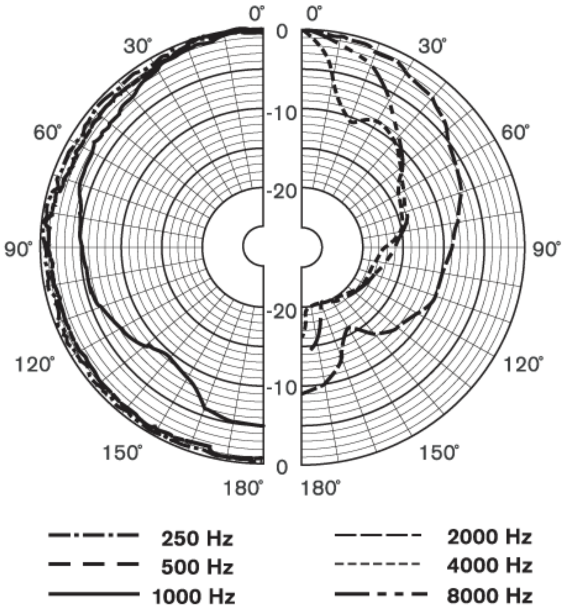
Dimensions in mm / (in)



Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

Octave band sensitivity*			
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.1	-	-
250 Hz	84.7	-	-
500 Hz	84.3	-	-
1000 Hz	85.3	-	-
2000 Hz	88.3	-	-
4000 Hz	90.7	-	-
8000 Hz	90.7	-	-
A-weighted	-	87.4	99.3
Lin-weighted	-	89.4	101.0

Octave band opening angles		
	Horizontal	Vertical
125 Hz	360	360
250 Hz	360	360
500 Hz	360	360
1000 Hz	220	220
2000 Hz	122	122
4000 Hz	67	67
8000 Hz	37	37

Acoustical performance specified per octave * (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

Quantity	Components
1	LS1-UC20E-1 Pendant Sphere Loudspeaker
1	Cable clamp

Technical specifications

Electrical*

Maximum power	30 W
Rated power	20 / 10 / 5 / 2.5 W
Sound pressure level at 20 W / 1 W (1kHz, 1 m)	99 dB / 86 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	220° / 65°
Effective frequency range (-10 dB)	80 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	500 ohm
Connector	3-pole screw terminal

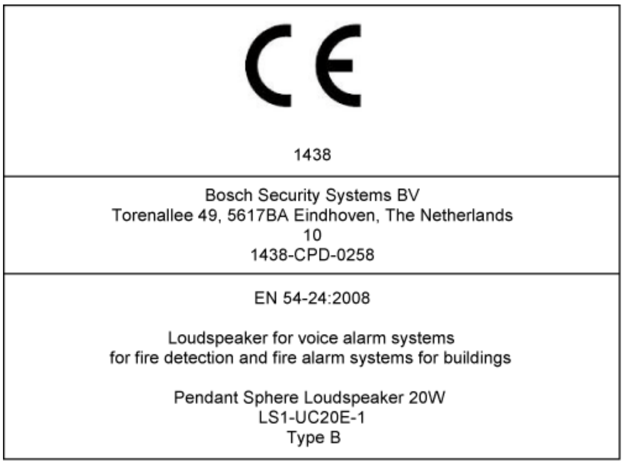
* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (D x L)	185 x 254 mm (7.3 x 10 in)
Weight	3 kg (6.6 lb)
Color	White (RAL 9010)
Material	ABS

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%



1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0258

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Pendant Sphere Loudspeaker 20W
LS1-UC20E-1
Type B

Ordering information

LS1-UC20E-1 Pendant Sphere Loudspeaker
Pendant sphere loudspeaker, 20 W, white ABS enclosure with metal grille, fixed 5 m, 5-core connection cable and cable suspension clamp, EN54-24 certified, white RAL 9010.
Order number **LS1-UC20E-1**

LBC 3432/02 Unidirectional Sound Projector

Features

- Excellent speech and music reproduction
- Provision for supervision board mounting
- (Suspended) ceiling and/or wall mounting
- Water and dust protected to IP 66
- EN 54-24 certified

The LBC 3432/02 is a powerful 20 W sound projector intended for speech and music reproduction in indoor and outdoor applications. The sturdy, aluminum enclosure is finished in the color off-white. It has provisions for cable loop through connection and mounting of a line or loudspeaker supervision board. The sound projector is suitable for use in voice alarm systems.

Functions

Voice alarm loudspeakers are specifically designed for use in buildings where performance of systems for verbal communication announcements is governed by regulations. The LBC 3432/02 is designed for use in voice alarm systems and is compliant with British Standard BS 5839-8 and EN 60849.

The sound projector has provision inside for mounting an optional line/loudspeaker supervision board.

The loudspeaker has built-in protection to secure that, in the event of a fire; damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.

The sound projector is constructed from extruded aluminum and finished in off- white. The front-grill and bracket are made from aluminum to increase corrosion resistance.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to BS 5839-8 / EN 54-24 / EN 60849
Water and dust protection	acc. to IEC 60529, IP 66

Region	Certification
Europe	CE
	CPD
Poland	CNBOP
	CNBOP

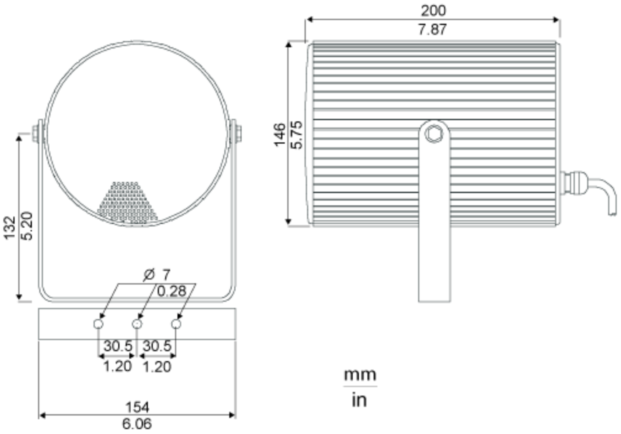
Installation/configuration notes

Mounting

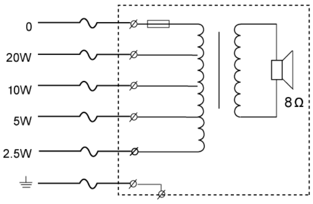
A sturdy aluminum mounting bracket is supplied to allow easy mounting and directing in virtually any position. The sound projector may also be suspended using the bracket.

Power Setting

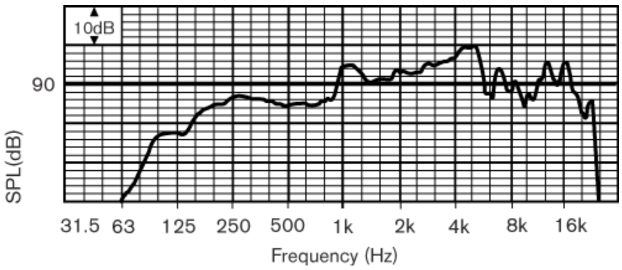
A one meter long fire-resistant six-core cable is standard fitted to the loudspeaker. Each core is a different color, and is connected to one of the primary taps on the transformer. For loop-through connection, the rear cover is fitted with a second entry hole (covered as standard supplied).



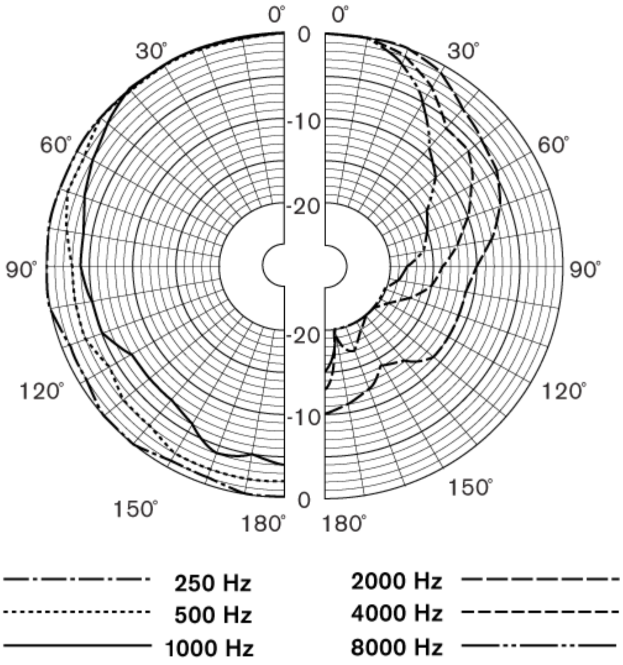
Dimensions: mm / in



Circuit diagram



Frequency response



Polar diagram

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	81.2	-	-
250 Hz	87.0	-	-
500 Hz	86.2	-	-
1000 Hz	92.2	-	-
2000 Hz	94.5		
4000 Hz	100.4	-	-
8000 Hz	93.3	-	-
A-weighted	-	93.2	104.9
Lin-weighted	-	93.1	104.2

Octave band opening angles

	Horizontal	Vertical	
125 Hz	360	360	
250 Hz	360	360	
500 Hz	360	360	
1000 Hz	179	179	
2000 Hz	105	105	
4000 Hz	49	49	
8000 Hz	46	46	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the valuals are in dBSPL)

Technical specifications

Electrical*

Maximum power	30 W
Rated power	20 / 10 / 5 / 2.5 W
Sound pressure level at 20 W / 1 W (1kHz, 1 m)	105 / 92 dB (SPL)
Opening angle at 1 kHz / 4 kHz (-6 dB)	180° / 70°
Effective frequency range (-10 dB)	150 Hz to 20 kHz
Rated voltage	100 V
Rated impedance	500 ohm
Connector	1 m fire-resistant cable

** Technical performance data acc. to IEC 60268-5*

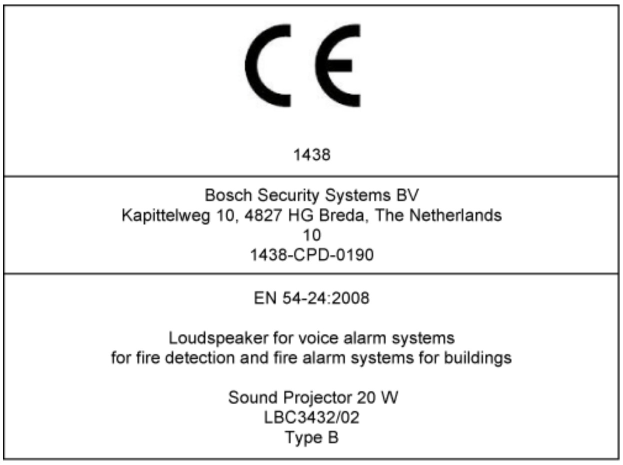
Mechanical

Dimensions (D x L)	146 x 200 mm (5.7 x 7.9 in)
Weight	2.6 kg (5.7 lb)
Color	White (RAL 9010)
Material	Aluminum

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4785/BA/10.



CE

1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0190

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Sound Projector 20 W
LBC3432/02
Type B

Ordering information

LBC 3432/02 Unidirectional Sound Projector
20 W, white (RAL 9010)
Order number **LBC 3432/02**

LS1-OC100E Hemi-directional Loudspeaker

Features

- For large area, high-ceiling applications
- Architecturally and acoustically innovative
- Hemi-directional pattern
- Optional bracket for fixed mounting
- Provision for internal mounting of the optional line/loudspeaker supervision board

The Bosch Hemi-directional Loudspeaker is an easy to install, innovative loudspeaker which projects consistent and high quality sound, ensuring superb reproduction of background music and high speech intelligibility for paging or emergency calls. The speaker's opening angle and high sound pressure level allows it to cover at least 600 m^2, making it extremely suitable for indoor high-ceiling areas like warehouses, transport and exhibition halls, mega stores and swimming pools.

Functions

Voice alarm loudspeaker
The LS1-OC100E is used in voice alarm systems and is compliant with EVAC standards. The loudspeaker has built-in protection to ensure that a fire-damaged loudspeaker does not cause failure of the connected circuit. This ensures system integrity, meaning loudspeakers in other areas can still be used to inform people of the fire. The loudspeaker has ceramic terminal blocks, a thermal fuse and heat-resistant, high-temperature wiring.

Materials
The loudspeaker is made of high-impact ABS TSG, self-extinguishing according to class UL 94 V 0 and with the highest flame retardant rating (UL 94 5VA). The loudspeaker has a white and silver finish; the metal grille has a silver finish.

Drivers
This acoustically innovative loudspeaker accommodates 14 drivers in combination with advanced positioning and filtering. *
* *patent pending*

Certifications and approvals

Safety	acc. to EN 60065
Emergency	acc. to EN 60849
Self-extinguishing	acc. to UL 94 V 0
Flame retardant	acc. to UL 94 5VA
Water and dust protection	acc. to EN 60529 IP 42
Chlorine resistant	acc. to IEC 60068/2-60
Mechanical impact	acc. to EN 50102 IK 07

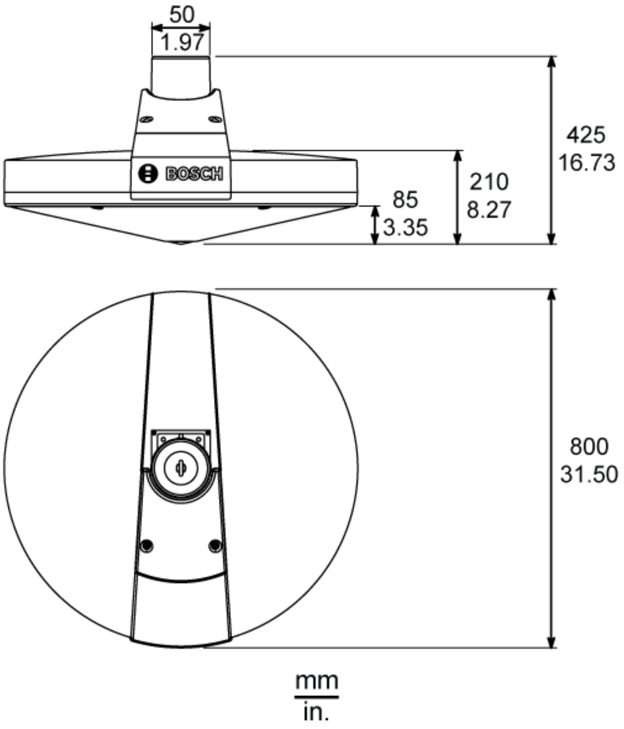
Region	Certification
Europe	CE

Installation/configuration notes

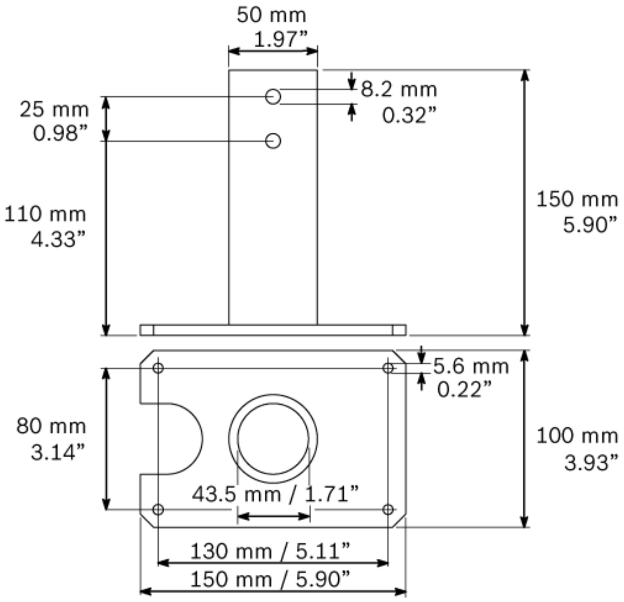
The loudspeaker can be suspended from a steel wire or chain using Dee shackles (not supplied).
A separate accessory, LM1-MSB, is available for applications where fixed suspension is required to avoid any loudspeaker movement (such as rotation, wobbling). This accessory uses a set of stainless steel mounting plates:

- one plate for mounting centrally onto the loudspeaker (with fixing provisions)
- one plate for fixing onto the ceiling or roof construction
- four fixing pins and spring clips
- four fixing screws

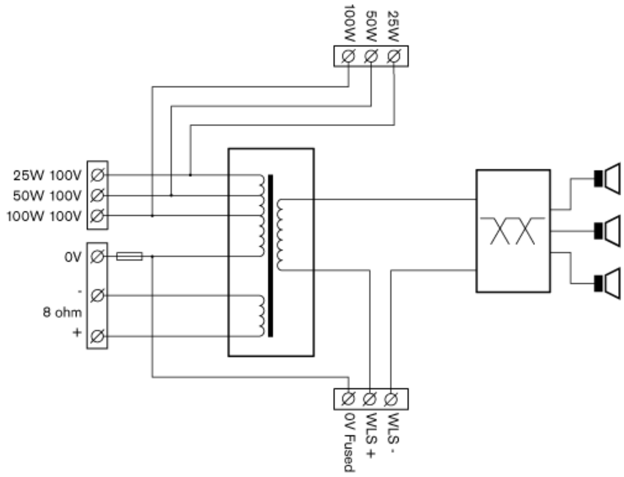
The mounting plates can be mechanically connected with a standard 39 mm dia. tube (not supplied by Bosch, but generally available in any required length).
For extra safety, the loudspeaker has an eye bolt with a maximum tensile strain of 1500 N for attaching an optional safety cord.
The electrical connection box, under the suspension cover, provides connection of the installation cable, allowing loop through and provision for internally mounting the optional line/loudspeaker supervision board.


50
1.97
425
16.73
210
8.27
85
3.35
BOSCH
800
31.50
mm
in.

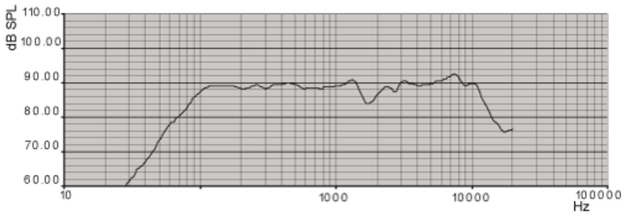
Dimensions LS1-OC100E


50 mm
1.97”
8.2 mm
0.32”
25 mm
0.98”
110 mm
4.33”
150 mm
5.90”
5.6 mm
0.22”
80 mm
3.14”
100 mm
3.93”
43.5 mm / 1.71”
130 mm / 5.11”
150 mm / 5.90”

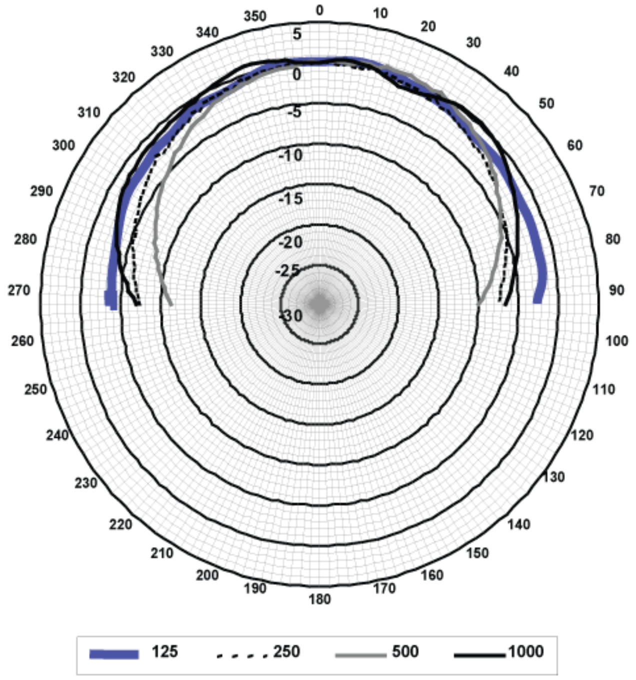
Dimensions LM1-MSB

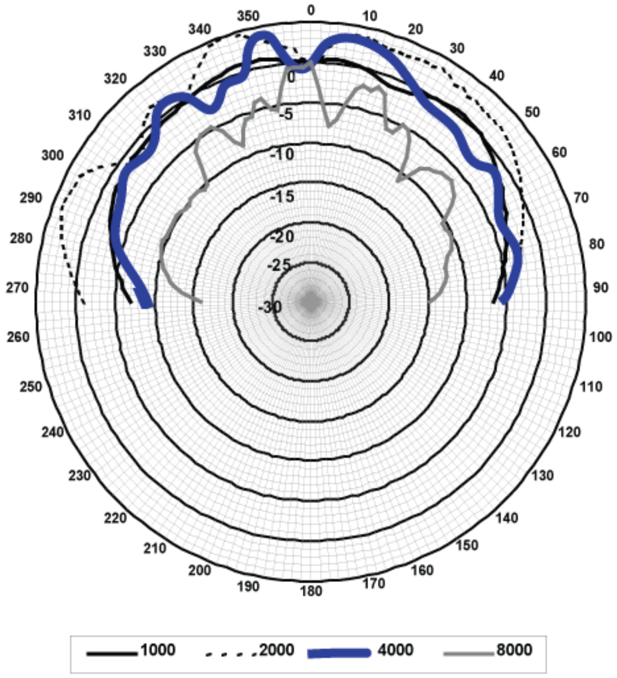

100W
50W
25W
25W 100V
50W 100V
100W 100V
0V
-
8 ohm
+
0V Fused
WLS +
WLS -

Circuit diagram

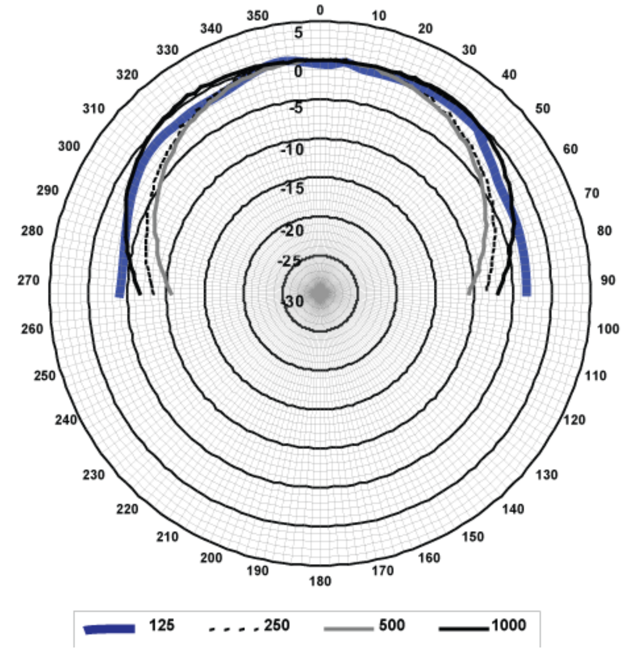


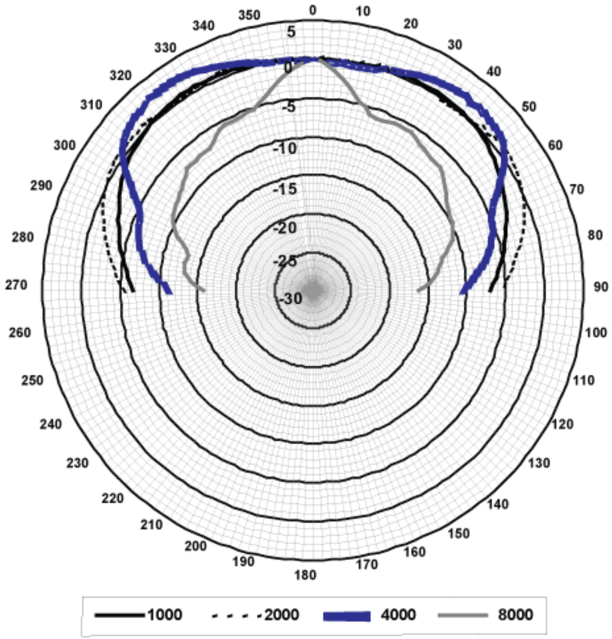
Frequency response





Vertical polar diagram of LS1-OC100E (pink noise octave, normalized at 0º axis)





Horizontal polar diagram of LS1-OC100E (pink noise octave, normalized at 0º axis)

Hz	125	250	500	1000	2000	4000	8000
SPL 1.1	89	89	89	89	86	88	93
Hor.	>180	145	125	170	>180	145	65
Vert.	>180	155	135	170	>180	170	70

Acoustical performance specified per octave

Parts included

Quantity	Components
1	LS1-OC100E
1	Installation Instructions

Technical specifications

Electrical*

Maximum power	150 W
Rated power	100 W (100 – 50 – 25 W)

Sound pressure level at 100 W / 1 W (1 kHz, 1 m)	109 / 89 dB
Sound pressure level at 100 W / 1 W (8 kHz, 1 m)	113 / 93 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	170º / 145º (horizontal) 170º / 170º (vertical)
Effective frequency range (-10 dB)	60 Hz to 17 kHz
Rated voltage	100 V and 28.3 V
Rated impedance	100 ohm and 8 ohm
Connector	Ceramic screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

LS1-OC100E	
Dimensions (dia. x H)	800 x 425 mm (31.50 x 16.74 in)
Weight	29 kg (63.93 lb)
Color baffle	White (RAL 9010)
Color top cover	Silver (RAL 9023)
Color grille	Silver (RAL 9006)
Material	ABS TSG

LM1-MSB	
Dimensions (H x W x D)	150 x 100 x 150 mm (5.90 x 3.94 x 5.90 in)
Weight	2.9 kg (6.39 lb)
Color	Silver (RAL 9023)
Material	Stainless steel (sandblasted)

Environmental

Operating temperature	-25 to +55 ºC (-13 to 131 ºF)
Storage temperature	-40 to +70 ºC (-40 to +158 ºF)
Relative humidity	<95%

Ordering information

LS1-OC100E Hemi-directional Loudspeaker
Hemi-directional loudspeaker, 100 W.
Order number **LS1-OC100E**

LS1-OC100E-1
Hemi-directional Loudspeaker

Features

- For large area, high-ceiling applications
- Optional bracket for fixed mounting
- Self-restoring tweeter overload protection
- Provision for internal mounting of the optional line/loudspeaker supervision board
- EN 54-24 certified

The Bosch Hemi-directional Loudspeaker is an easy to install, innovative loudspeaker which projects consistent and high quality sound, ensuring superb reproduction of background music and high speech intelligibility for paging or emergency calls. The speaker's opening angle and high sound pressure level allows it to cover at least 700 m^2, making it extremely suitable for indoor high-ceiling areas like warehouses, transport and exhibition halls, mega stores and swimming pools.

Functions

Voice alarm loudspeaker
The LS1-OC100E-1 is used in voice alarm systems and is compliant with emergency standards. The loudspeaker has built-in protection to ensure that a fire-damaged loudspeaker does not cause failure of the connected circuit. This ensures system integrity, meaning loudspeakers in other areas can still be used to inform people of the fire. The loudspeaker has ceramic terminal blocks, a thermal fuse and heat-resistant, high-temperature wiring.

Materials
The loudspeaker is made of high-impact ABS TSG, self-extinguishing according to class UL 94 V 0 and with the highest flame retardant rating (UL 94 5VA). The loudspeaker has a white and silver finish; the metal grille has a silver finish. All metal parts are zinc plated.

Drivers
This acoustically innovative loudspeaker accommodates 14 drivers in combination with advanced positioning and filtering.

Certifications and approvals

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Self-extinguishing	acc. to UL 94 V 0
Flame retardant	acc. to UL 94 5VA
Water and dust protection	acc. to EN 60529 IP 42
Chlorine resistant	acc. to IEC 60068/2-60
Mechanical impact	acc. to EN 50102 IK 07

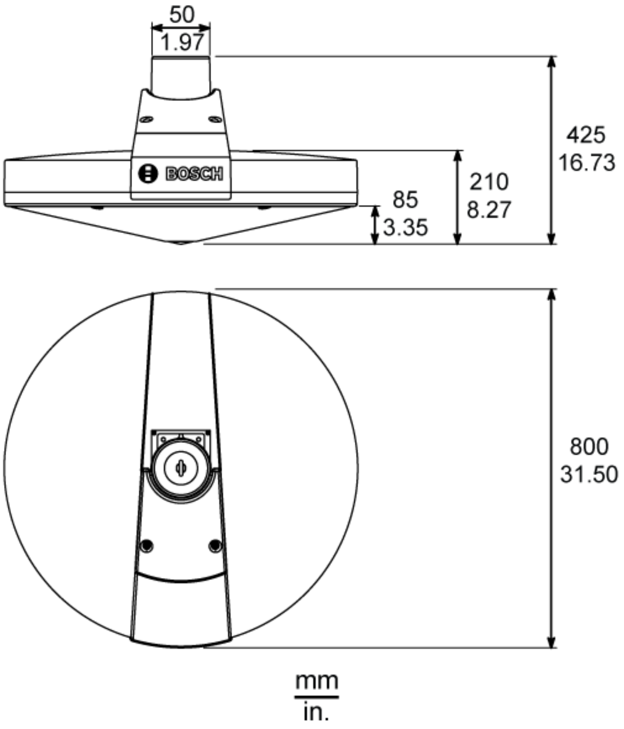
Region	Certification
Europe	CE
	CPD

Installation/configuration notes

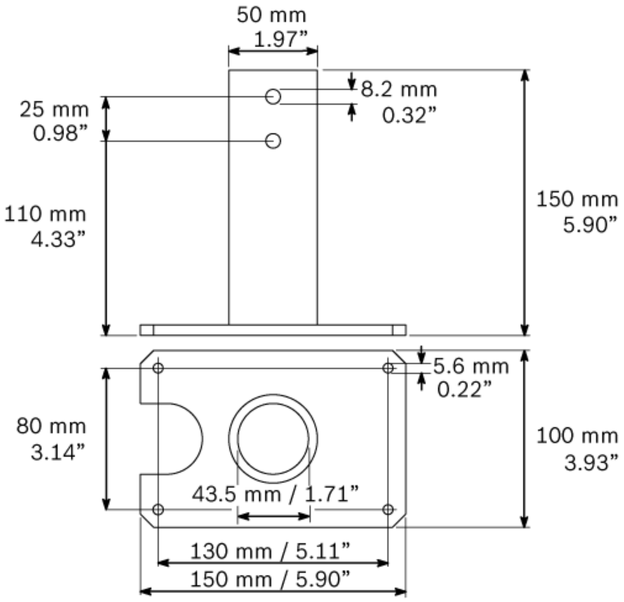
The loudspeaker can be suspended from a steel wire or chain using Dee shackles (not supplied).
A separate accessory, LM1-MSB-1, is available for applications where fixed suspension is required to avoid any loudspeaker movement (such as rotation, wobbling). This accessory uses a set of zinc plated steel mounting plates:

- one plate for mounting centrally onto the loudspeaker (with fixing provisions)
- one plate for fixing onto the ceiling or roof construction
- four fixing pins and spring clips
- four fixing screws

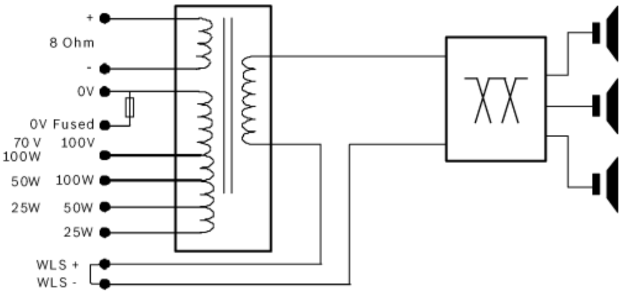
The mounting plates can be mechanically connected with a standard 42.4 mm (DIN EN 10255) dia. tube (not supplied by Bosch, but generally available in any required length).
For extra safety, the loudspeaker has an eye bolt (M8 x13) with a maximum tensile strain of 1500 N for attaching an optional safety cord.
The electrical connection box, under the suspension cover, provides connection of the installation cable, allowing loop through and provision for internally mounting the optional line/loudspeaker supervision board.


50
1.97
425
16.73
210
8.27
85
3.35
800
31.50
mm
in.

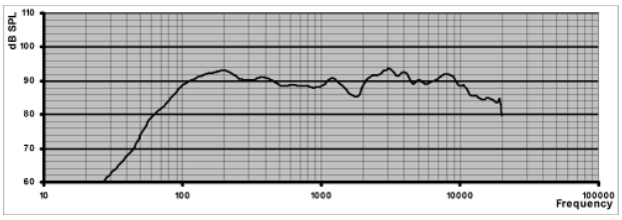
Dimensions LS1-OC100E-1


50 mm
1.97"
8.2 mm
0.32"
25 mm
0.98"
110 mm
4.33"
150 mm
5.90"
5.6 mm
0.22"
80 mm
3.14"
100 mm
3.93"
43.5 mm / 1.71"
130 mm / 5.11"
150 mm / 5.90"

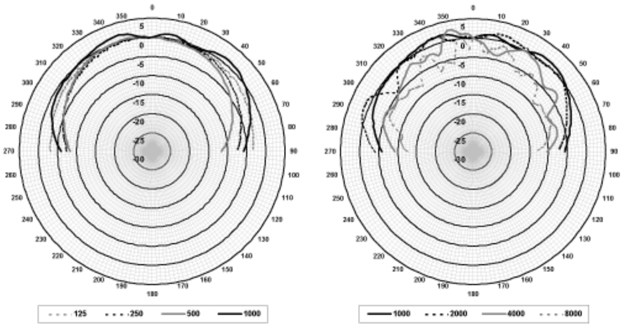
Dimensions LM1-MSB-1


+
8 Ohm
-
0V
0V Fused
70 V
100W
100V
50W
100W
25W
50W
25W
WLS +
WLS -

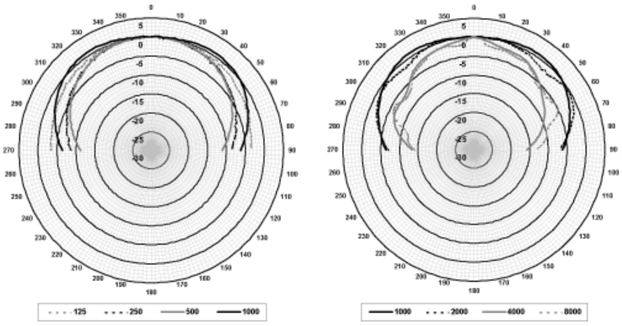
Circuit diagram



Frequency response



Vertical polar diagram of LS1-OC100E-1 (pink noise octave, normalized at 0º axis)



Horizontal polar diagram of LS1-OC100E-1 (pink noise octave, normalized at 0º axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	91.2	-	-
250 Hz	92.1	-	-
500 Hz	90.5	-	-
1000 Hz	89.5	-	-
2000 Hz	90.1		
4000 Hz	92.1	-	-
8000 Hz	91.8	-	-
A-weighted	-	88.0	107.1
Lin-weighted	-	89.7	109.0

Octave band opening angles

	Horizontal	Vertical	
125 Hz	>180	>180	
250 Hz	139	153	
500 Hz	127	136	

1000 Hz	175	180	
2000 Hz	172	180	
4000 Hz	96	137	
8000 Hz	111	80	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL)

Parts included

Quantity	Components
1	LS1-OC100E-1
1	Installation Instructions

Technical specifications

Electrical*

Maximum power	150 W
Rated power	100 W (100 – 50 – 25 W)
Sound pressure level at 100 W / 1 W (1 kHz, 1 m)	110 / 90 dB
Opening angle at 1 kHz / 4 kHz (-6 dB)	175° / 96° (horizontal) 180° / 137° (vertical)
Effective frequency range (-10 dB)	60 Hz to 20 kHz
Rated voltage	100 V, 70 V and 28.3 V
Rated impedance	100 ohm, 50 ohm and 8 ohm
Connector	Ceramic screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

LS1-OC100E-1	
Dimensions (dia. x H)	800 x 425 mm (31.50 x 16.74 in)
Weight	27 kg (59.52 lb)
Color baffle	White (RAL 9010)
Color top cover	Pearl dark gray (RAL 9023)
Color grille	White aluminum (RAL 9006)
Material	ABS TSG

LM1-MSB-1	
Dimensions (H x W x D)	150 x 100 x 150 mm (5.90 x 3.94 x 5.90 in)
Weight	2.9 kg (6.39 lb)
Color	Pearl dark gray (RAL 9023)
Material	Zinc plated steel

Environmental

Operating temperature	-25 to +55 °C (-13 to 131 °F)
Storage temperature	-40 to +70 °C (-40 to +158 °F)
Relative humidity	<95%

CE
1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0255

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Hemi-directional loudspeaker
LS1-OC100E-1
Type A

Ordering information

LS1-OC100E-1 Hemi-directional Loudspeaker
Hemi-directional loudspeaker, 100 W, high-impact ABS enclosure, metal grille, suspended mounted for large areas/high-ceilings, self-restoring tweeter overload protection, chlorine resistant, water and dust protected IP 42, white/silver finish.
Order number **LS1-OC100E-1**

Accessories

LM1-MSB-1 Metal Suspension Bracket Adaptor Set
Metal suspension bracket adaptor set for fixed suspension of the Hemi-directional Loudspeaker LS1-OC100E-1, prevents loudspeaker movement, zinc-plated steel, supplied with 4 fixing pins and screws.
Order number **LM1-MSB-1**

LBC 34xx/12 Horn Loudspeakers

Features

- High efficiency drivers
- Up to 45 W (max. power)
- Wide opening angle
- Excellent speech reproduction
- Simple power setting

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

System overview

The LBC 3481/12 is a circular horn loudspeaker, and the LBC 3491/12 is a rectangular model. Both are 10 W, and are made from ABS.
The LBC 3492/12 is a circular, 20 W horn loudspeaker with a large horn measuring 354 mm in diameter. It is made from a combination of aluminum with ABS for optimum strength and low weight. The edge of the horn is covered with a PVC profile for protection against impact damage.
The LBC 3493/12 is a circular, 30 W horn loudspeaker with a large horn measuring 400 mm in diameter. It is made from a combination of aluminum with ABS for optimum strength and low weight. The edge of the horn is covered with PVC for protection against impact damage.

Functions

All four models are for direct connection to a 100 V line output and are finished in light grey (RAL 7035). The horns are water and dust protected.
The horn loudspeakers include a 100 V transformer with taps on the primary winding to allow different power settings. Nominal full-power, half-power or quarter-power radiation (in 3 dB steps) can easily be selected by connecting the amplifier output to the appropriate tap.
A 2 m four-core cable is fitted to the horns. Each core is a different color, and is connected to one of the primary taps on the transformer.
The horn loudspeakers are supplied complete with sturdy adjustable mounting brackets, allowing the sound beam to be accurately directed.

Certifications and approvals

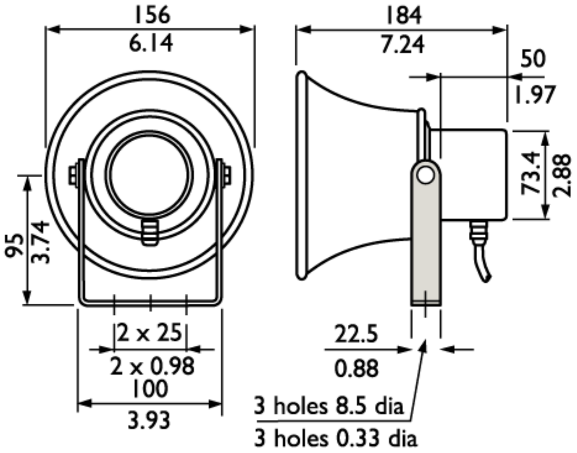
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0
Water and dust protection	acc. to EN 60529-IP65

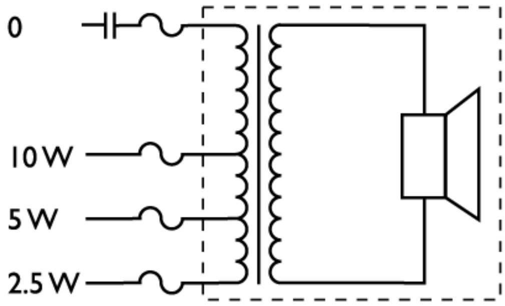
Region	**Certification**	
Europe	CE	Declaration of Conformity
	CE	

Installation/configuration notes

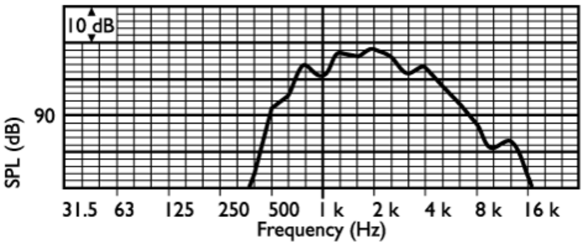
LBC 3481/12



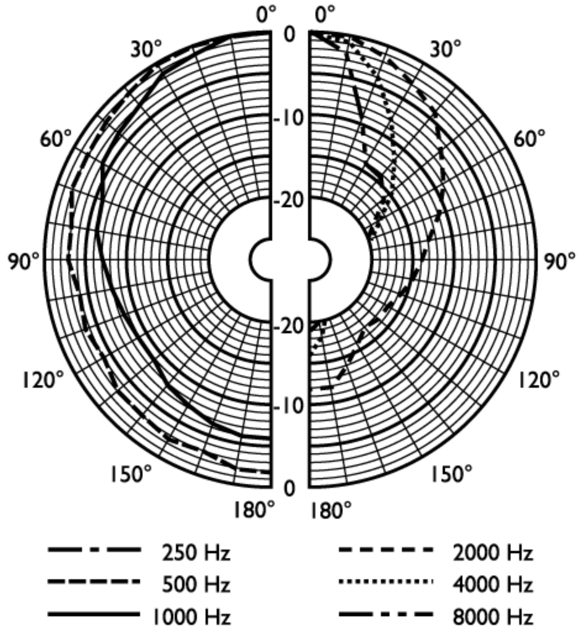
Dimensions in mm (in)



Circuit diagram



Frequency response

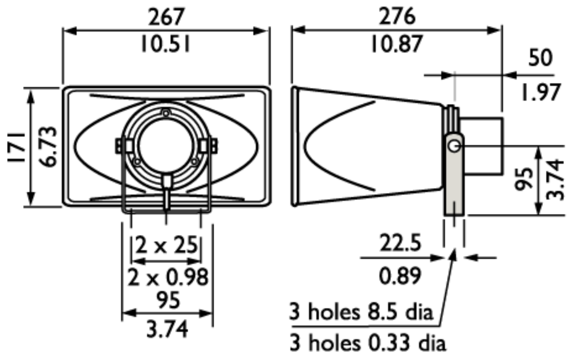


Polar diagram (measured with pink noise)

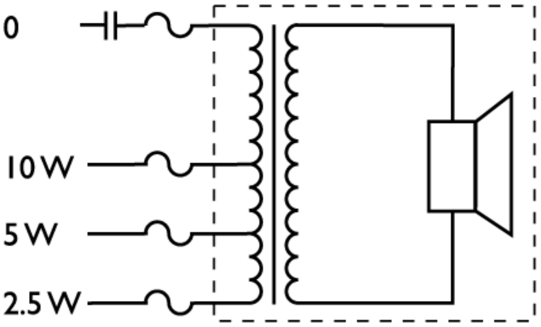
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	-	94	103	105	98	86
SPL max.	-	-	104	113	115	108	96
Q-factor	-	-	1.7	3.5	7.8	25.7	52.5
Efficiency	-	-	1.82	7.08	5.13	0.31	0.01
H. angle	-	-	180	160	95	50	30
V. angle	-	-	180	160	95	50	30

Acoustical performance specified per octave

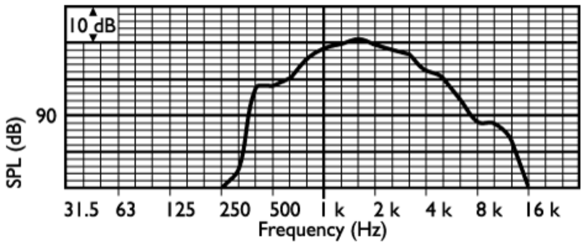
LBC 3491/12


267
10.51
276
10.87
50
1.97
171
6.73
95
3.74
2 x 25
2 x 0.98
95
3.74
22.5
0.89
3 holes 8.5 dia
3 holes 0.33 dia

Dimensions in mm (in)



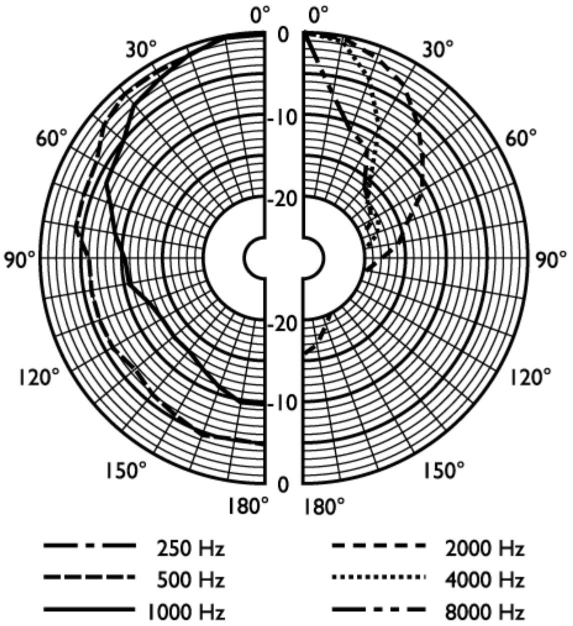
Circuit diagram



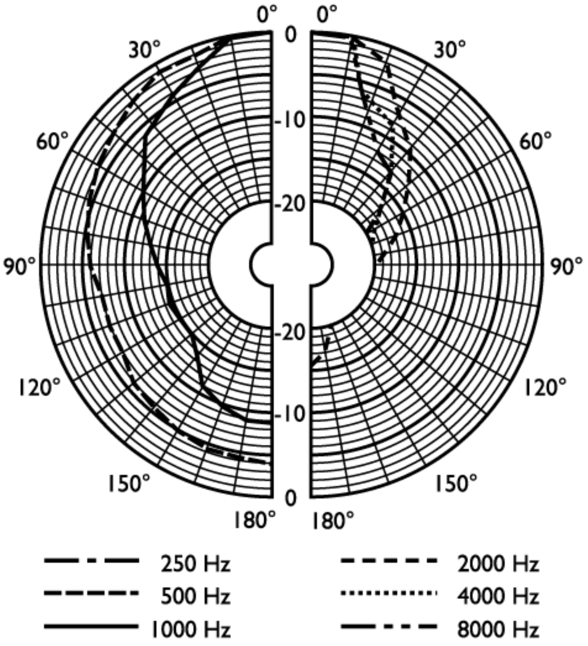
Frequency response

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	-	99	108	111	106	97
SPL max.	-	-	109	118	121	116	107
Q-factor	-	-	2.7	6.5	15.8	40.7	75.9
Efficiency	-	-	3.72	12.3	10	1.23	0.08
H. angle	-	-	180	90	55	40	30
V. angle	-	-	180	130	80	45	15

Acoustical performance specified per octave

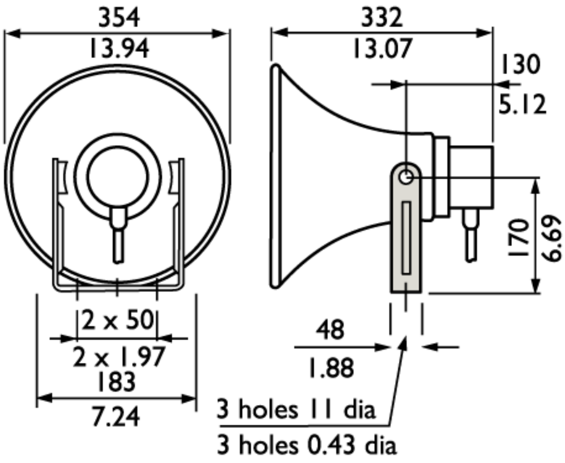


Polar diagram vertical (measured with pink noise)

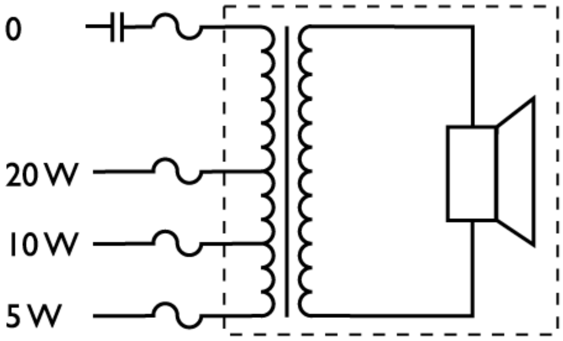


Polar diagram horizontal (measured with pink noise)

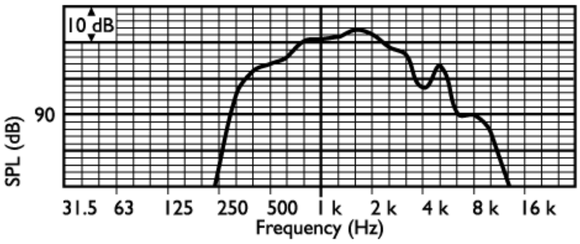
LBC 3492/12


354
13.94
332
13.07
130
5.12
170
6.69
2 x 50
2 x 1.97
183
7.24
48
1.88
3 holes 11 dia
3 holes 0.43 dia

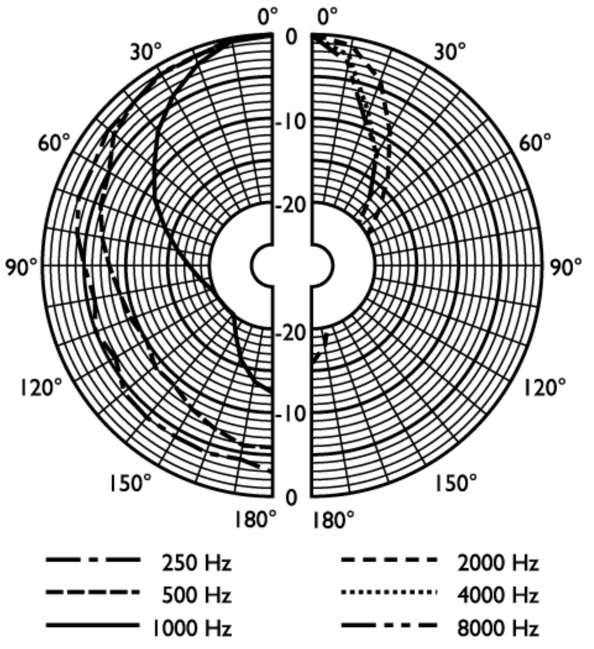
Dimensions in mm (in)



Circuit diagram



Frequency response

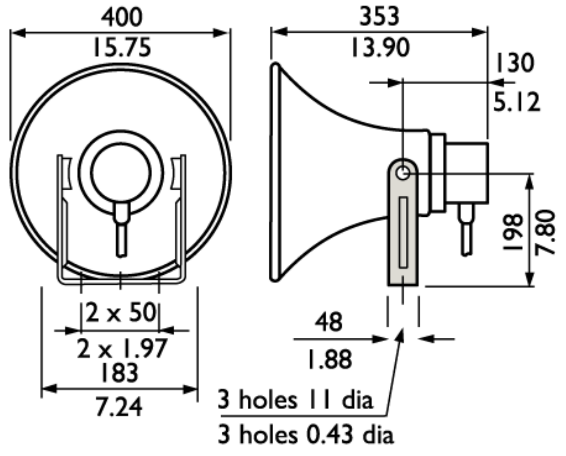


Polar diagram (measured with pink noise)

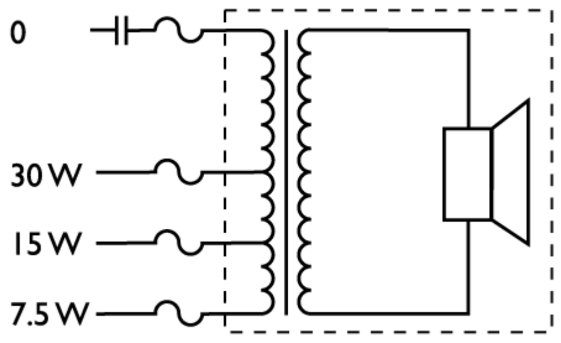
	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	93	105	110	112	104	90
SPL max.	-	106	118	123	125	117	103
Q-factor	-	2.2	3.5	10.7	30.9	57.5	75.9
Efficiency	-	1.15	11.2	11.75	6.46	0.55	0.02
H. angle	-	180	145	80	45	35	30
V. angle	-	180	145	80	45	35	30

Acoustical performance specified per octave

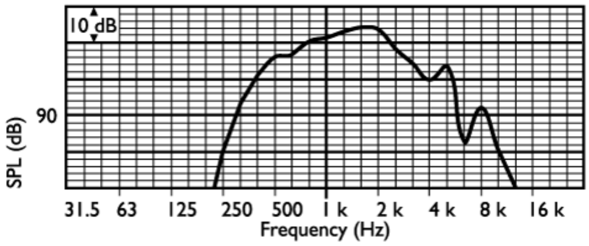
LBC 3493/12


400
15.75
353
13.90
130
5.12
198
7.80
2 x 50
2 x 1.97
183
7.24
48
1.88
3 holes 11 dia
3 holes 0.43 dia

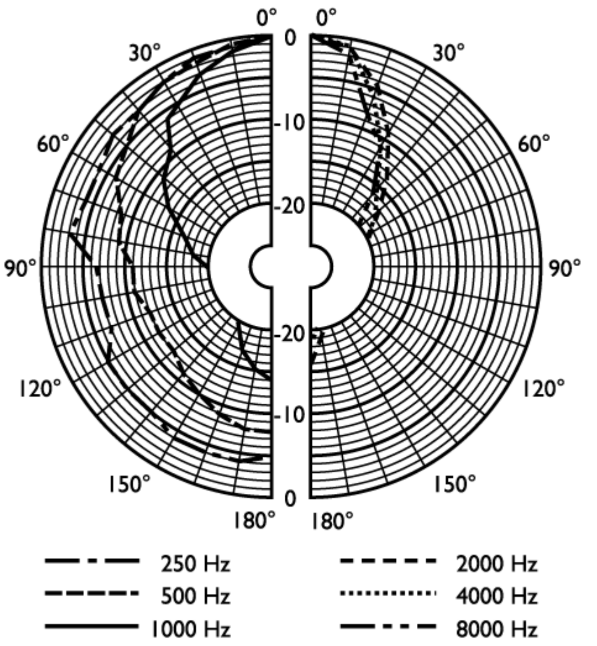
Dimensions in mm (in)


0
30 W
15 W
7.5 W

Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	92	105	111	112	104	90
SPL max.	-	107	120	126	127	119	105
Q-factor	-	2.6	5.1	15.1	37.2	61.7	74.1

Efficiency	-	0.78	7.76	10.47	5.37	0.41	0.02
H. angle	-	180	120	70	45	40	30
V. angle	-	180	120	70	45	40	30

Acoustical performance specified per octave

Ordering information

LBC 3481/12 Horn Loudspeaker, Circular, 10 W
Horn loudspeaker 10 W, circular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3481/12**

LBC 3491/12 Horn Loudspeaker, Rectangular, 10 W
Horn loudspeaker 10 W, rectangular, ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3491/12**

LBC 3492/12 Horn Loudspeaker, Circular, 20 W
Horn loudspeaker 20 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3492/12**

LBC 3493/12 Horn Loudspeaker, Circular, 30 W
Horn loudspeaker 30 W, circular, aluminum/ABS material, water and dust protected according IP65, fixed 2 m, 4-wire connection cable, light gray RAL 7035.
Order number **LBC3493/12**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 347x/00 Horn and Driver Loudspeaker Range

Features

- High efficiency drivers
- Excellent speech reproduction
- Easy assembly
- Water- and dust protected to IP 65
- Provision for inside mounting of optional supervision boards

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.

System overview

This range includes two circular type horns with aperture diameters of 355 mm (14 in) and 490 mm (20 in) and three driver units of 25 W, 35 W and 50 W.
The assembly of the horn with the driver (separate ordered) results in an integrated horn loudspeaker.
In this way the assembly of horn and driver, LBC3472/00 and LBC3478/00 is identical to the integrated horn loudspeaker LBC3482/00.

The assembly of LBC3473/00 and LBC3479/00 is identical to the integrated horn loudspeaker LBC3483/00. The assembly of LBC3474/00 and LBC3479/00 is identical to the integrated horn loudspeaker LBC3484/00.

The horns LBC3478/00 and LBC3479/00 are made from aluminum and the edges of the horns are covered with a PVC profile for protection against impact damage.
The driver units LBC3472/00, LBC3473/00 and LBC 3474/00 have an aluminum inner cone and are provided with steel mounting brackets. The rear cover of the driver units is made from self-extinguishing ABS (Acc. to class UL 94 V 0).

Both horns and drivers are finished in light grey (RAL 7035).

Notice

To reduce packaging volume and cost, the drivers as well as the horns are packaged 6 per box. The minimum order quantity is therefore 6 drivers and 6 horns.

Drivers and horns to be ordered separately.

Certifications and approvals

Quality assurance

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessons the chance of failure or performance deterioration.

Safety	Acc. to EN 60065
Water and dust protection	Acc. to IEC 60529, IP 65
Emergency	Acc. to EN 54-24 / BS 5839-8

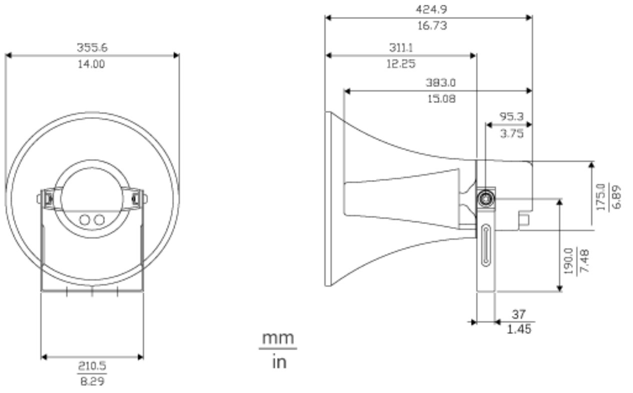
Installation/configuration notes

Assembly

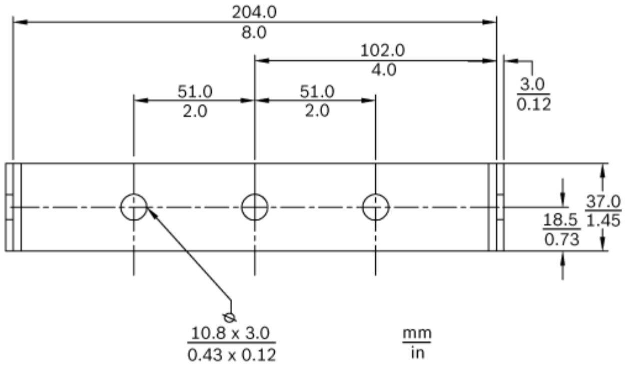
The horn and the driver are assembled by means of 3 screws (standard supplied). A steel mounting bracket is standard fitted onto the driver unit, allowing the sound beam to be accurately directed.
The connection cable is fed out through an ABS cable gland (PG 13.5) in the rear cover of the driver unit. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied).
The drivers have provision for mounting the optional line/loudspeaker supervision board.

Simple power setting

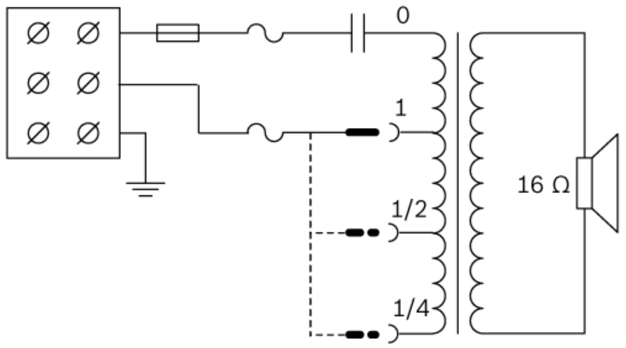
The horn driver has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (i.e. in 3 dB steps).


355.6
14.00
210.5
8.29
424.9
16.73
311.1
12.25
383.0
15.08
95.3
3.75
175.0
6.89
190.0
7.48
37
1.45
mm
in

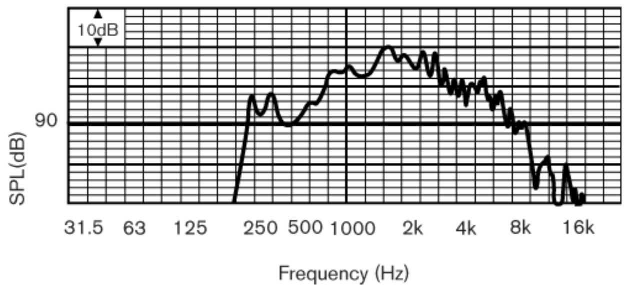
LBC3472/00 with LBC3478/00 dimensions in mm (in)


204.0
8.0
102.0
4.0
51.0
2.0
51.0
2.0
3.0
0.12
37.0
1.45
18.5
0.73
10.8 x 3.0
0.43 x 0.12
mm
in

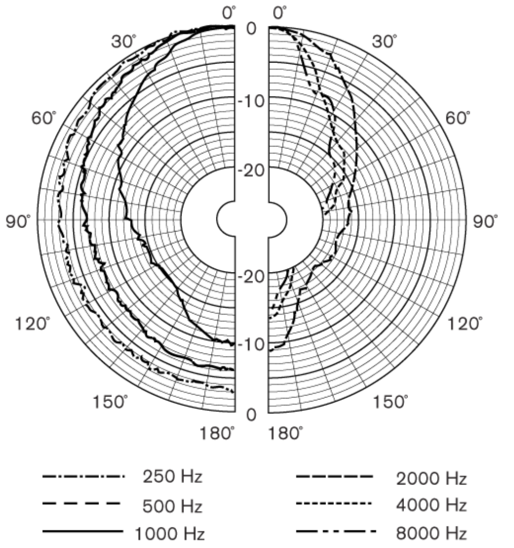
LBC3472/00 bracket dimensions in mm (in)



LBC3472/00 circuit diagram



LBC3472/00 with LBC3478/00 frequency response



LBC3472/00 with LBC3478/00 polar diagram (measured in pink noise)

Octave band sensitivity *

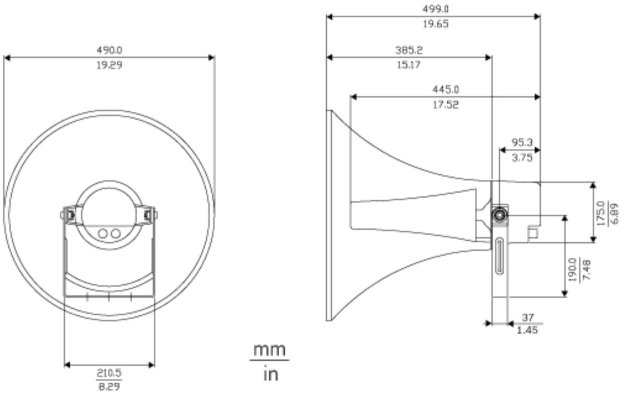
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	60.1	-	-
250 Hz	86.6	-	-
500 Hz	100.2	-	-
1000 Hz	106.9	-	-
2000 Hz	104.1		
4000 Hz	99.4	-	-
8000 Hz	87.8	-	-
A-weighted	-	100.1	113.0
Lin-weighted	-	99.8	111.8

Octave band opening angles

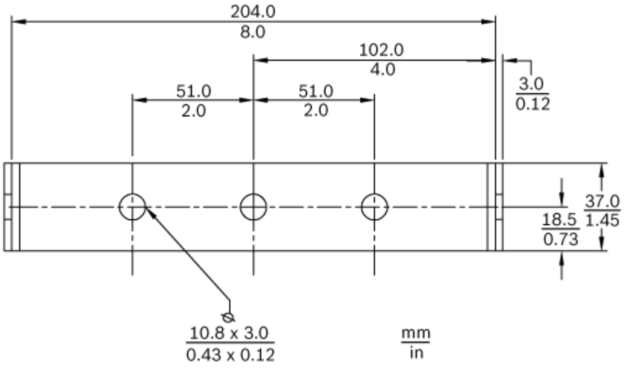
	Horizontal	Vertical
125 Hz	-	-
250 Hz	360	360
500 Hz	120	120
1000 Hz	75	75
2000 Hz	43	43
4000 Hz	25	25
8000 Hz	22	22

LBC3472/00 with LBC3478/00. Acoustical performance specified per octave

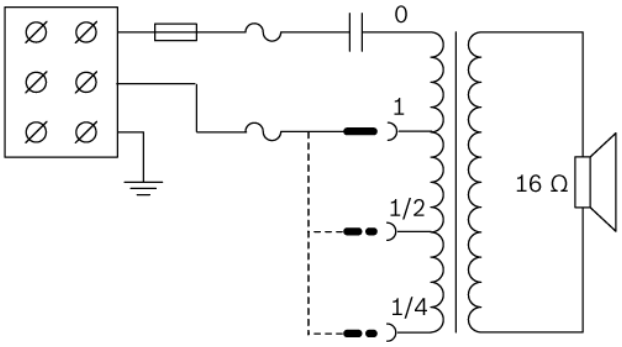
- * All measurements are done with a pink noise signal; the valuals are in dBSPL.


490.0
19.29
499.0
19.65
385.2
15.17
445.0
17.52
95.3
3.75
175.0
6.89
190.0
7.48
37
1.45
210.5
8.29
mm
in

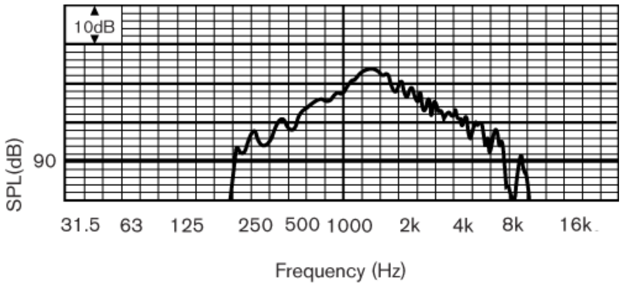
LBC3473/00 with LBC3479/00 dimensions in mm (in)


204.0
8.0
102.0
4.0
51.0
2.0
51.0
2.0
3.0
0.12
37.0
1.45
18.5
0.73
10.8 x 3.0
0.43 x 0.12
mm
in

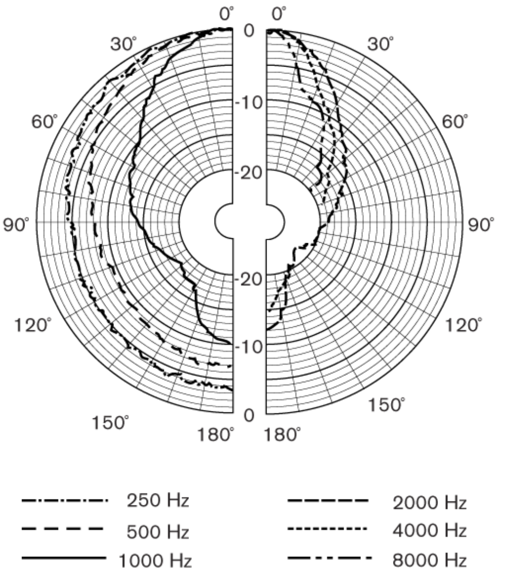
LBC3473/00 bracket dimensions in mm (in)



LBC3473/00 circuit diagram



LBC3473/00 with LBC3479/00 frequency response



LBC 3473/00 with LBC3479/00 polar diagram (measured in pink noise)

Octave band sensitivity *

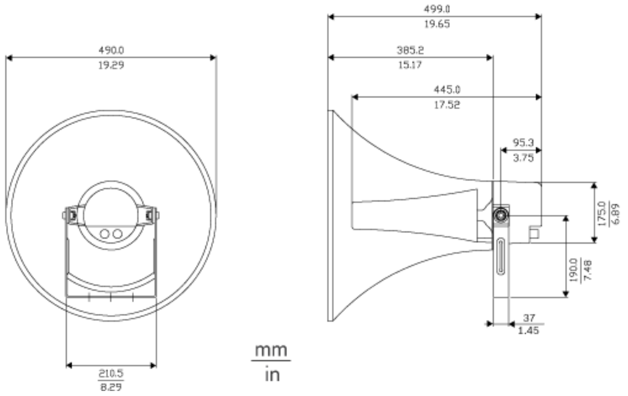
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	74.0	-	-
250 Hz	91.7	-	-
500 Hz	102.5	-	-
1000 Hz	111.3	-	-
2000 Hz	106.5		
4000 Hz	99.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	103.5	117.1
Lin-weighted	-	103.4	115.6

Octave band opening angles

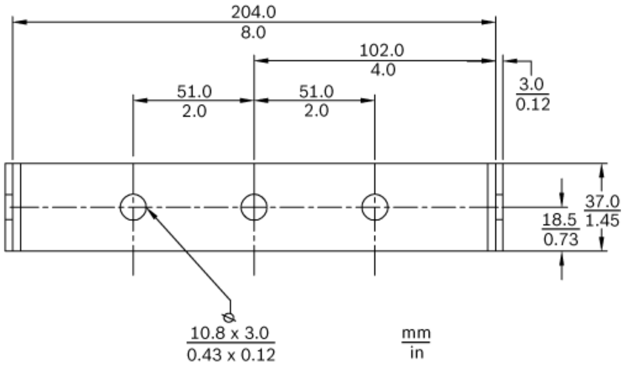
	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

LBC3473/00 with LBC3479/00 Acoustical performance specified per octave

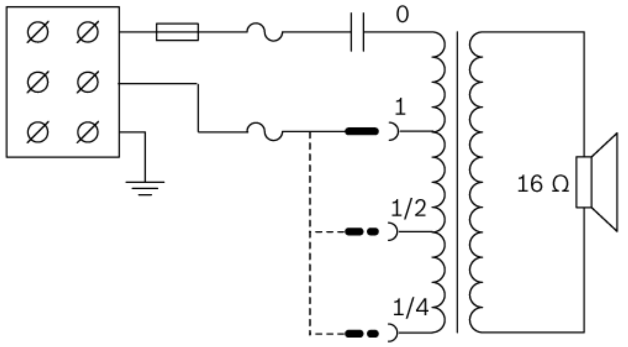
- * All measurements are done with a pink noise signal; the valuals are in dBSPL.


490.0
19.29
499.0
19.65
385.2
15.17
445.0
17.52
95.3
3.75
175.0
6.89
190.0
7.48
37
1.45
210.5
8.29
mm
in

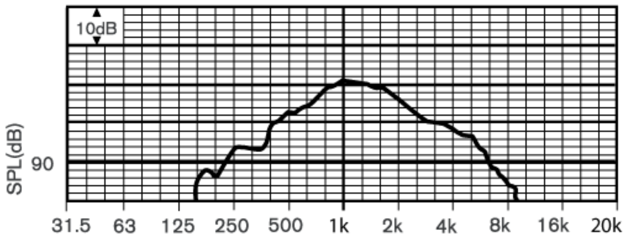
LBC3474/00 with LBC3479/00 dimensions in mm (in)


204.0
8.0
102.0
4.0
51.0
2.0
51.0
2.0
3.0
0.12
37.0
1.45
18.5
0.73
10.8 x 3.0
0.43 x 0.12
mm
in

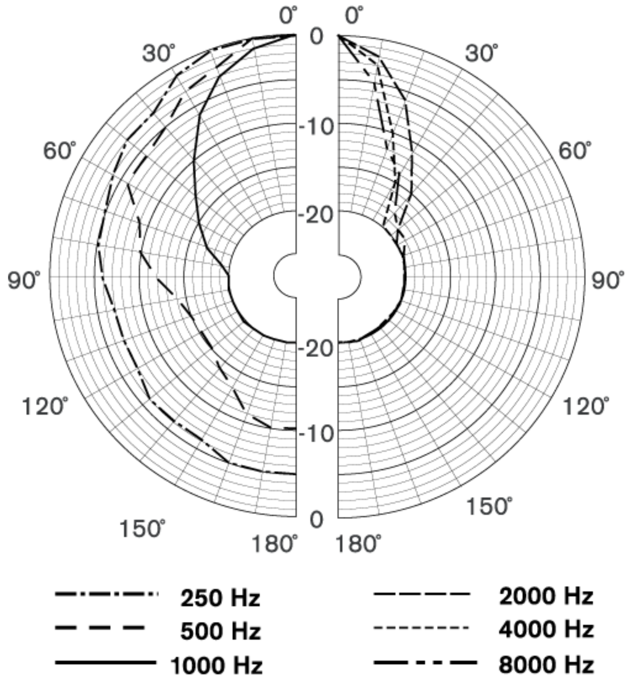
LBC3474/00 bracket dimensions in mm (in)



LBC3474/00 circuit diagram



LBC3474/00 with LBC3479/00 frequency response



LBC3474/00 with LBC3479/00 polar diagram (measured in pink noise)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.3	-	-
250 Hz	99.0	-	-
500 Hz	105.2	-	-
1000 Hz	111.0	-	-
2000 Hz	106.2		
4000 Hz	99.2	-	-
8000 Hz	91.2	-	-
A-weighted	-	103.3	117.7
Lin-weighted	-	103.5	116.3

Octave band opening angles

	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

LBC3474/00 with LBC3479/00 acoustical performance specified per octave

- * All measurements are done with a pink noise signal; the valuals are in dBSPL.

Parts included

Quantity	Component
1	LBC 347x/00
1	Installation instruction (only valid for LBC3472/00, LBC3473/00 and LBC3474/00)
1	PG 13.5 cable gland (fitted) (only valid for LBC3472/00, LBC3473/00 and LBC3474/00)

Technical specifications

LBC3472/00 and LBC3478/00

Electrical*

Maximum power	37.5 W
Rated power	25 / 12.5 / 6.25 W
Sound pressure level at 25 W / 1 W (1 kHz, 1 m)	121 dB / 107 dB (SPL)
Effective frequency range (-10 dB)	550 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	70° / 25°
Rated voltage	100 V
Rated impedance	400 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 355 x 311 mm (14 x 12.2 in) Driver: 383 x 175 mm (15 x 6.9 in)
Weight	Horn: 0.7 kg (1.54 lb) Driver: 2.9 kg (6.38 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

LBC3473/00 and LBC3479/00

Electrical*

Maximum power	52.5 W
Rated power	35 / 17.5 / 8.75 W
Sound pressure level at 35 W / 1 W (1 kHz, 1 m)	127 dB / 112 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	50° / 25°
Rated voltage	100 V
Rated impedance	286 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 499 x 385 mm (19.64 x 15.16 in) Driver: 445 x 175 mm (17.5 x 6.88 in)
Weight	Horn: 1 kg (2.20 lb) Driver: 3.5 kg (7.70 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

LBC3474/00 and LBC 3479/00

Electrical *

Maximum power	75 W
Rated power	50 / 25 / 12.5 W
Sound pressure level at 50 W / 1 W (1 kHz, 1 m)	127 dB / 110 dB (SPL)
Effective frequency range (-10 dB)	350 Hz to 4 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	60° / 28°
Rated voltage	100 V

Rated impedance	200 ohm
Connector	Screw terminal block

* Technical performance data according to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	Horn: 499 x 385 mm (19.64 x 15.16 in) Driver: 445 x 175 mm (17.5 x 6.88 in)
Weight	Horn: 1 kg (2.20 lb) Driver: 5 kg (11 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC3472/00 Driver Unit 25 W
Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3472/00**

LBC3473/00 Driver Unit 35 W
Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3473/00**

LBC3474/00 Driver Unit 50 W
Horn driver 50 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3474/00**

LBC3478/00 Horn 14" without driver
Horn 14” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC3478/00**

LBC3479/00 Horn 20" without driver
Horn 20” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC3479/00**

LBC 3482/00 Horn Loudspeaker

Features

- High efficiency driver
- Excellent speech reproduction
- Provision for inside mounting of the optional line/ loudspeaker supervision board
- Water-and dust protected to IP 65
- EN 54-24 certified

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.
The LBC 3482/00 is a circular 25 W horn loudspeaker, measuring 355 mm (14 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3482/00 is designed for use in voice alarm systems and is compliant with emergency standards.
The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.
They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification
Europe	CE
	CPD
Poland	CNBOP

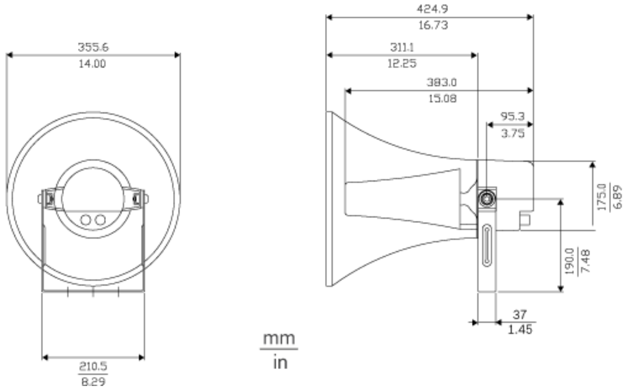
Installation/configuration notes

Simple Power Setting

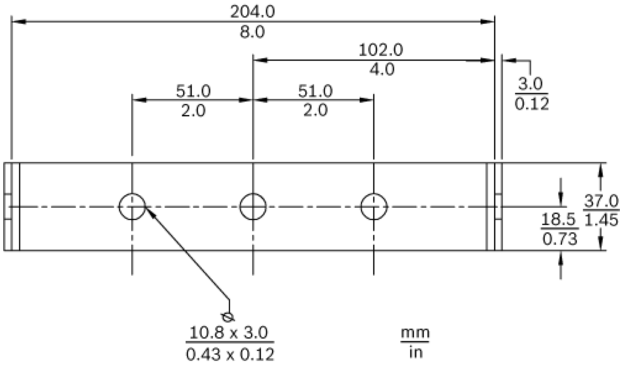
The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Mounting

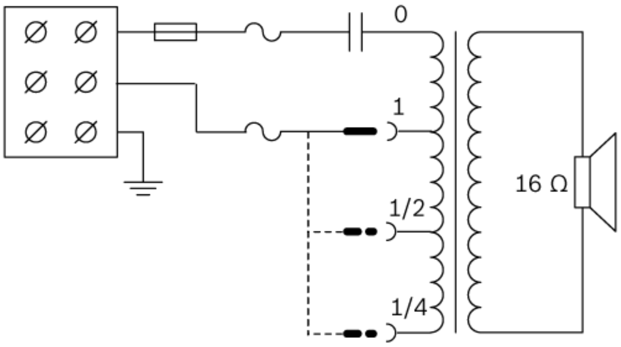
The horn loudspeakers are supplied, complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.



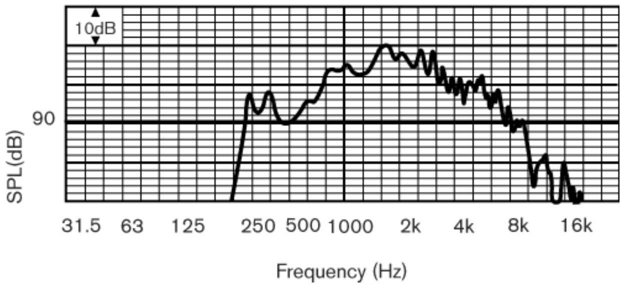
Dimensions in mm (in)


204.0
8.0
102.0
4.0
51.0
2.0
51.0
2.0
3.0
0.12
37.0
1.45
18.5
0.73
10.8 x 3.0
0.43 x 0.12
mm
in

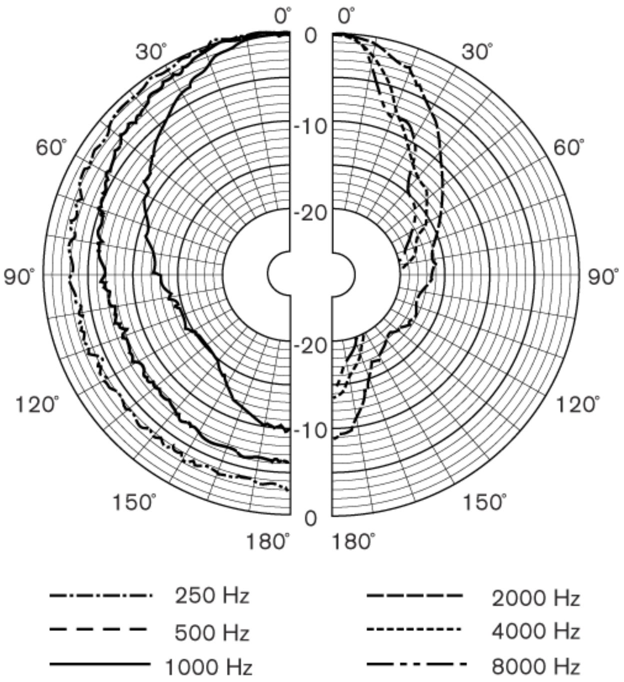
Bracket dimensions



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *

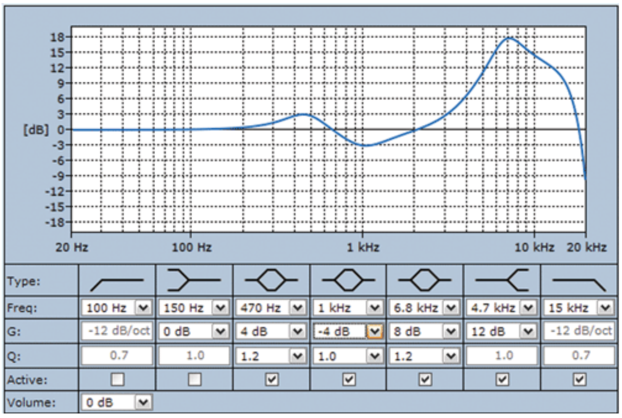
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	60.1	-	-
250 Hz	86.6	-	-
500 Hz	100.2	-	-
1000 Hz	106.9	-	-
2000 Hz	104.1		
4000 Hz	99.4	-	-
8000 Hz	87.8	-	-
A-weighted	-	100.1	113.0
Lin-weighted	-	99.8	111.8

Octave band opening angles

	Horizontal	Vertical	
125 Hz	-	-	
250 Hz	360	360	
500 Hz	120	120	
1000 Hz	75	75	
2000 Hz	43	43	
4000 Hz	25	25	
8000 Hz	22	22	

Acoustical performance specified per octave

- (all measurements are done with a pink noise signal; the valuals are in dBSPL)



Type:							
Freq:	100 Hz	150 Hz	470 Hz	1 kHz	6.8 kHz	4.7 kHz	15 kHz
G:	-12 dB/oct	0 dB	4 dB	-4 dB	8 dB	12 dB	-12 dB/oct
Q:	0.7	1.0	1.2	1.0	1.2	1.0	0.7
Active:	☐	☐	☑	☑	☑	☑	☑
Volume:	0 dB						

Specified active equalization, required for EN54-24

Parts included

Quantity	Component
1	LBC 3482/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	37.5 W
Rated power	25 / 12.5 / 6.25 W
Sound pressure level at 25 W / 1 W (1 kHz, 1 m)	121 dB / 107 dB (SPL)
Effective frequency range (-10 dB)	550 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	70° / 25°
Rated voltage	100 V
Rated impedance	400 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	425 x 355 mm (16.7 x 14 in)
Weight	3.6 kg (8 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4786/BA/10.

1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0192

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Horn Loudspeaker 25 W
LBC3482/00
Type B

Ordering information

LBC 3482/00 Horn Loudspeaker
Horn loudspeaker 25 W, circular, 14”, aluminum/ABS material, U-bracket mounting, water and dust protected IP 65, EN54-24 certified, light gray RAL 7035.
Order number **LBC3482/00**

Accessories

LBC 3478/00 Horn, 14" without Driver
Horn 14” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver
Horn 20” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3479/00**

LBC 3472/00 Driver Unit
Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3472/00**

LBC 3473/00 Driver Unit
Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3473/00**

LBC 3474/00 Driver Unit
Horn driver 50 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3474/00**

LBC 3483/00 Horn Loudspeaker

Features

- High efficiency driver
- Excellent speech reproduction
- Provision for inside mounting of the optional line/ loudspeaker supervision board
- Water-and dust protected to IP 65
- EN 54-24 certified

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.
The LBC 3483/00 is a circular, 35 W horn loudspeaker, measuring 490 mm (19.6 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3483/00 is designed for use in voice alarm systems and is compliant with emergency standards.
The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The Horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.
They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification
Europe	CE
	CPD
Poland	CNBOP
	CNBOP

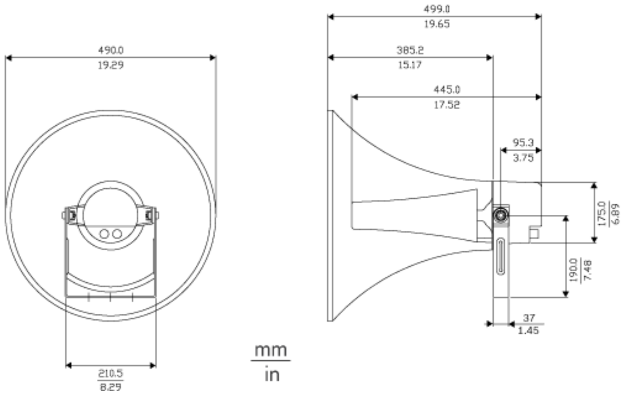
Installation/configuration notes

Simple Power Setting

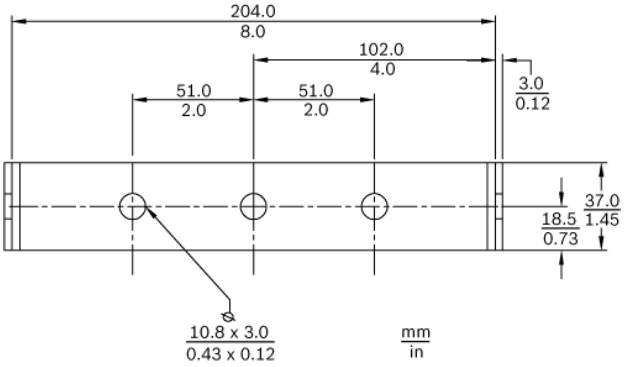
The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Mounting

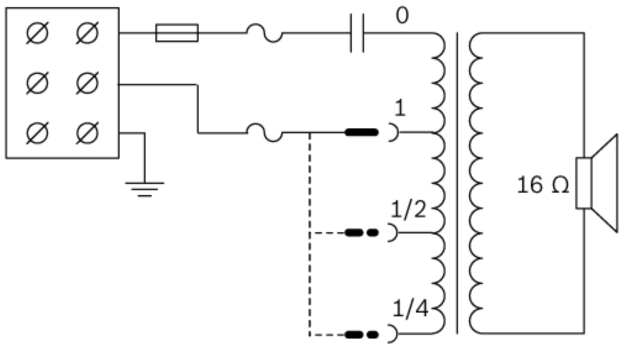
The horn loudspeakers are supplied complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.


490.0
19.29
499.0
19.65
385.2
15.17
445.0
17.52
95.3
3.75
175.0
6.89
190.0
7.48
37
1.45
210.5
8.29
mm
in

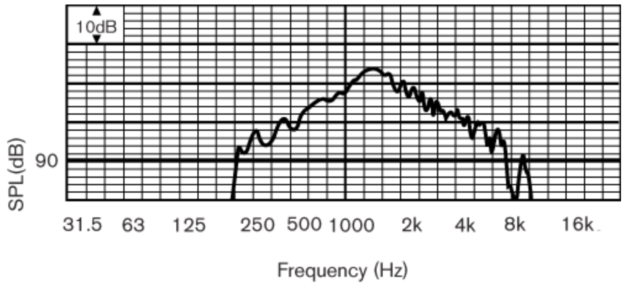
Dimensions in mm (in)


204.0
8.0
102.0
4.0
51.0
2.0
51.0
2.0
3.0
0.12
37.0
1.45
18.5
0.73
10.8 x 3.0
0.43 x 0.12
mm
in

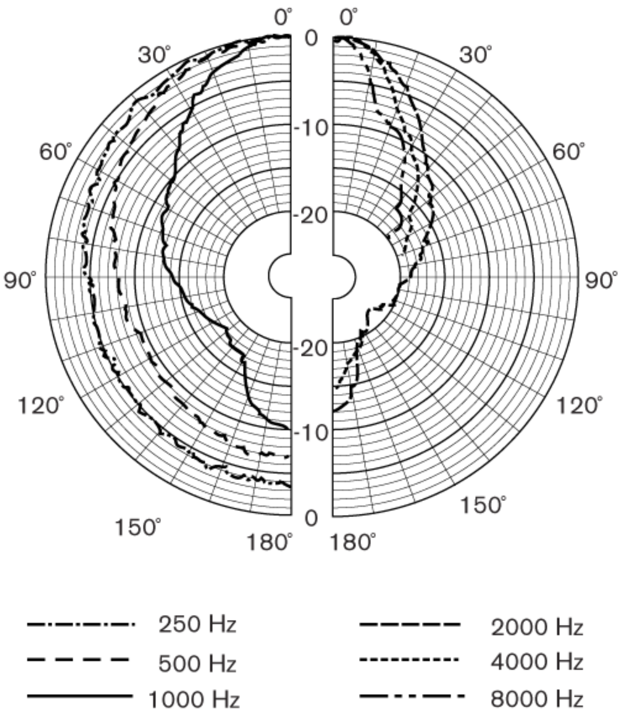
Bracket dimensions



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *

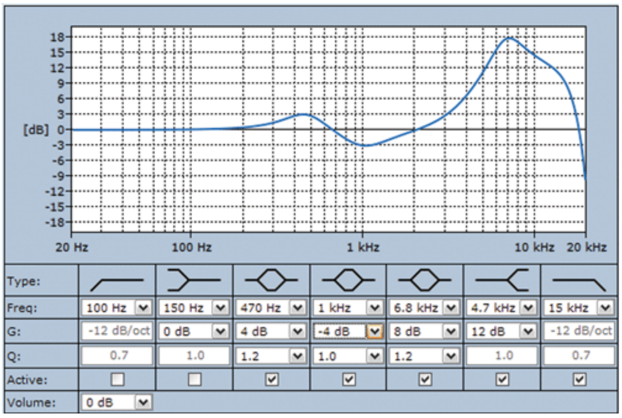
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	74.0	-	-
250 Hz	91.7	-	-
500 Hz	102.5	-	-
1000 Hz	111.3	-	-
2000 Hz	106.5		
4000 Hz	99.9	-	-
8000 Hz	92.6	-	-
A-weighted	-	103.5	117.1
Lin-weighted	-	103.4	115.6

Octave band opening angles

	Horizontal	Vertical
125 Hz	-	-
250 Hz	179	179
500 Hz	93	93
1000 Hz	55	55
2000 Hz	37	37
4000 Hz	26	26
8000 Hz	15	15

Acoustical performance specified per octave

- (all measurements are done with a pink noise signal; the valuals are in dBSPL)



Type:							
Freq:	100 Hz	150 Hz	470 Hz	1 kHz	6.8 kHz	4.7 kHz	15 kHz
G:	-12 dB/oct	0 dB	4 dB	-4 dB	8 dB	12 dB	-12 dB/oct
Q:	0.7	1.0	1.2	1.0	1.2	1.0	0.7
Active:	☐	☐	☑	☑	☑	☑	☑
Volume:	0 dB						

Specified active equalization, required for EN54-24

Parts included

Quantity	Component
1	LBC 3483/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	52.5 W
Rated power	35 / 17.5 / 8.75 W
Sound pressure level at 35 W / 1 W (1 kHz, 1 m)	127 dB / 112 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	50° / 25°
Rated voltage	100 V
Rated impedance	286 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	499 x 490 mm (20 x 19.6 in)
Weight	4.5 kg (9.9 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Other parameters are available in CNBOP test report nr 4787/BA/10.

CE

1438

Bosch Security Systems BV
Kapittelweg 10, 4827 HG Breda, The Netherlands
10
1438-CPD-0191

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Horn Loudspeaker 35 W
LBC3483/00
Type B

Ordering information

LBC 3483/00 Horn Loudspeaker
Horn loudspeaker 35 W, circular 20", aluminum/ABS material, U-bracket mounting, water and dust protected IP65, EN54-24 certified, light gray RAL 7035.
Order number **LBC3483/00**

Accessories

LBC 3472/00 Driver Unit
Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3472/00**

LBC 3473/00 Driver Unit
Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3473/00**

LBC 3474/00 Driver Unit
Horn driver 50 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3474/00**

LBC 3478/00 Horn, 14" without Driver
Horn 14” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver
Horn 20” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3479/00**

LBC 3484/00 Horn Loudspeaker

Features

- High efficiency driver
- Excellent speech reproduction
- Provision for inside mounting of the optional line/ loudspeaker supervision board
- Water-and dust protected to IP 65
- BS 5839-8 and EN 60849 compliant

Bosch high-efficiency horn loudspeakers provide excellent speech reproduction and sound distribution for a wide scope of outdoor applications. They are ideal for sports grounds, parks, exhibitions, factories and swimming pools.
The LBC 3484/00 is a circular 50 W horn loudspeaker, measuring 490 mm (19.6 in) in diameter. They are made from aluminum. The edges of the horns are covered with a PVC profile for protection against impact damage. They are light grey (RAL 7035), and are water and dust protected.

Voice alarm loudspeaker

The LBC 3484/00 is designed for use in voice alarm systems and is compliant with emergency standards.
The Horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained; ensuring loudspeakers in other areas can still be used to inform people of the situation. The Horn loudspeaker has a ceramic terminal block, thermal fuse and heat resistant, high-temperature wiring.
They have provision for inside mounting the optional line/loudspeaker supervision boards.

Functions

The rear cover on the horn is made from self-extinguishing ABS (acc. to class UL 94 V0). The connection cable is fed out through a cable gland (PG 13.5) in rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied). These integrated horns are also available as separate horn and driver, allowing installing any combination of horn and driver. See order information for the type numbers.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operation life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Emergency	acc. to BS 5839-8 / EN 60849
Wind-force	acc. to NEN 6702: 2007 + A1: 2008, Bft11

Region	Certification
Europe	CE

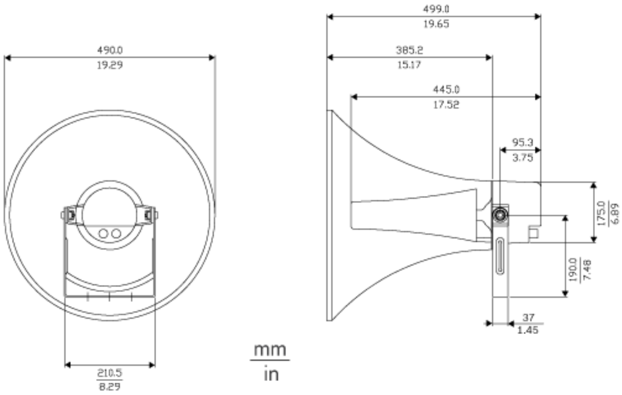
Installation/configuration notes

Simple Power Setting

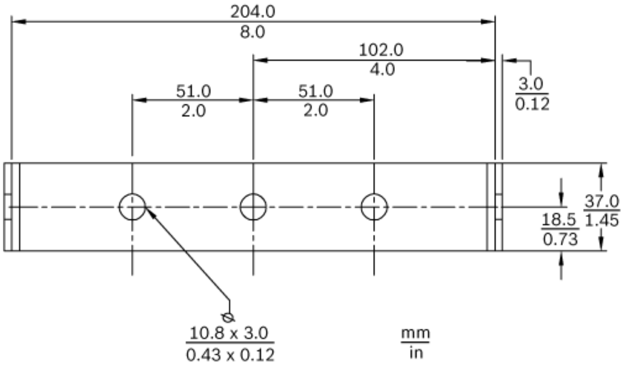
The horn has a three-way terminal block with screw connection (including earth). Three primary taps are provided on the matching transformer to allow selection of nominal full-power, half-power or quarter-power radiation (in 3 dB steps).

Mounting

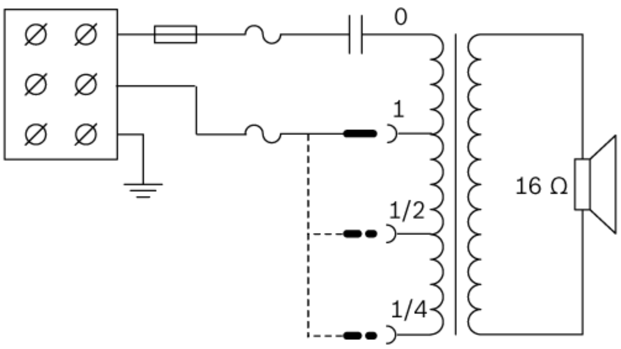
The horn loudspeakers are supplied complete with sturdy adjustable steel mounting brackets, allowing the sound beam to be accurately directed.



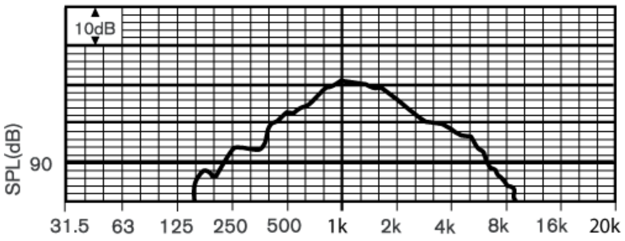
Dimensions in mm (in)



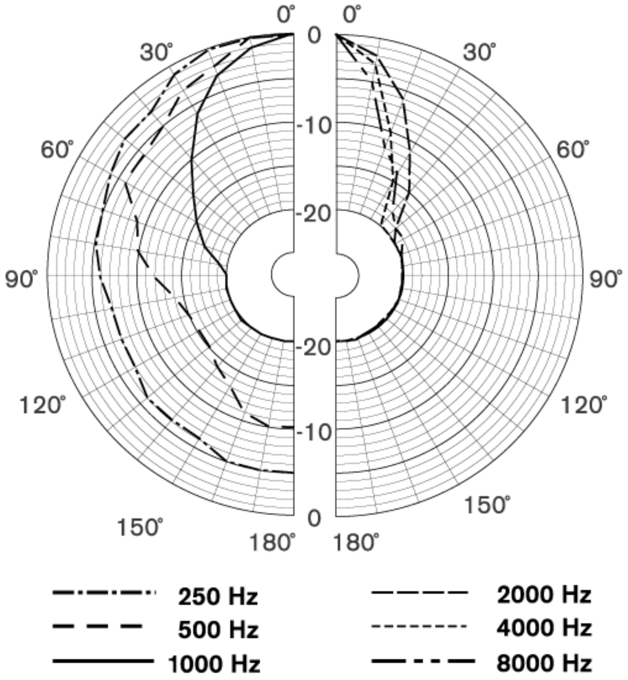
Bracket dimensions in mm (in)



Circuit diagram



Frequency response



Polar diagram (measured in pink noise)

Octave band sensitivity *			
	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	84.3	-	-
250 Hz	99.0	-	-
500 Hz	105.2	-	-
1000 Hz	111.0	-	-
2000 Hz	106.2		
4000 Hz	99.2	-	-
8000 Hz	91.2	-	-
A-weighted	-	103.3	117.7
Lin-weighted	-	103.5	116.3

Octave band opening angles			
	Horizontal	Vertical	
125 Hz	-	-	
250 Hz	179	179	
500 Hz	93	93	
1000 Hz	55	55	
2000 Hz	37	37	
4000 Hz	26	26	
8000 Hz	15	15	

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the valuals are in dBSPL)

Parts included

Quantity	Components
1	LBC 3484/00 Horn Loudspeaker
1	PG 13.5 cable gland (fitted)

Technical specifications

Electrical *

Maximum power	75 W
Rated power	50 / 25 / 12.5 W
Sound pressure level at 50 W / 1 W (1 kHz, 1 m)	127 dB / 110 dB (SPL)
Effective frequency range (-10 dB)	350 Hz to 4 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	60° / 28°
Rated voltage	100 V
Rated impedance	200 ohm
Connector	Screw terminal block

Mechanical

Dimensions (L x Dmax)	499 x 490 mm (20 x 19.6 in)
Weight	6 kg (13.22 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3484/00 Horn Loudspeaker
Horn loudspeaker 50 W, circular 20", aluminum/ABS material, U-bracket mounting, water and dust protected IP65, light gray RAL 7035.
Order number **LBC3484/00**

Accessories

LBC 3472/00 Driver Unit
Horn driver 25 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3472/00**

LBC 3473/00 Driver Unit
Horn driver 35 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC 3473/00**

LBC 3474/00 Driver Unit
Horn driver 50 W, for use with LBC3478/00 (14") or LBC3479/00 (20") horns, light gray RAL 7035.
Order number **LBC3474/00**

LBC 3478/00 Horn, 14" without Driver
Horn 14” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3478/00**

LBC 3479/00 Horn, 20" without Driver
Horn 20” without driver, aluminum material, for use with horn drivers LBC3472/00 (25 W), LBC3473/00 (35 W), and LBC3474/00 (50 W), light gray RAL 7035.
Order number **LBC 3479/00**

LBC 340x/16 Horn Loudspeakers

Features

- Excellent acoustic properties
- Choice of driver units
- Water and dust protected to IP 65
- Versatile mounting bracket
- UV light resistant

The Bosch professional horn loudspeaker system allows a range of different driver units to be installed into the various horns. The system includes four horns, three circular types with aperture diameters of 255, 380 and 510 mm and a rectangular model with an opening measuring 390 x 235 mm.

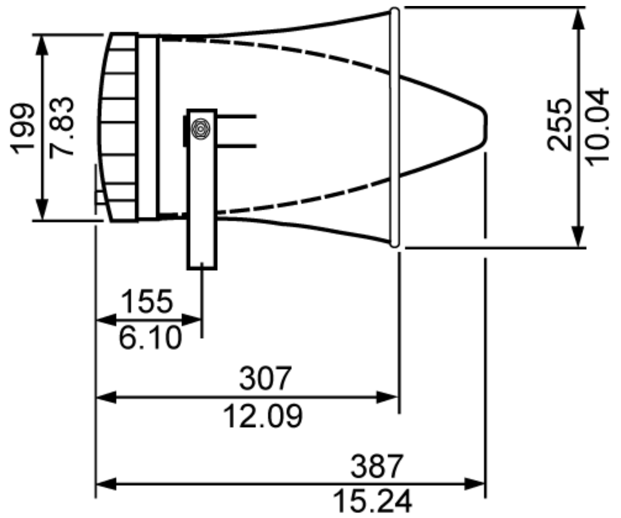
Functions

The drivers (ordered separately) are mounted inside the horn, and the connection cable is fed out through a cable gland in the cover plate. This makes the loudspeaker horn/driver unit splash-waterproof, and therefore ideal for outdoor sound reinforcement applications. Three driver units are available, a 15 W, 30 W and a 50 W type for 100 V lines only. See separate datasheet.
In the construction of the horns, maximum use has been made of standard parts in a modular concept. The screw thread for securing the driver units is a standard 1 3/8-inch thread (1 3/8" - 18 UNEF-2A). The shape of the cover plate gives the horns a distinctive and easily recognizable style.
The cover plates have provision on their inside face for mounting the optional line/loudspeaker supervision board (and for mounting the emergency Connection Adapter).
There is also an extra knock-out hole to enable loop-through cabling (if loop-through is used, an extra optional cable gland PG 13.5 must be fitted).
They are made from flame-retardant, high-impact plastic combining strength with low weight. This rugged material is resistant to ultraviolet light, aggressive environments and most industrial chemicals. The horns (incl. brackets) are finished in light grey. The sturdy steel mounting bracket (ST 37-2 DIN 1652) allows easy mounting and directing of the horn.

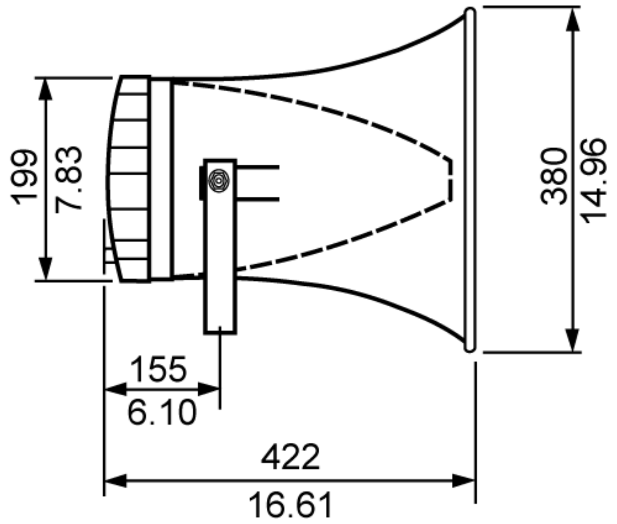
Certifications and approvals

Water and dust protection	acc. to IEC 60529, IP 65 (all models)
Self-extinguishing	acc. to UL 94 Vo

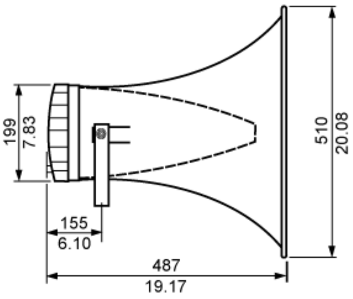
Installation/configuration notes



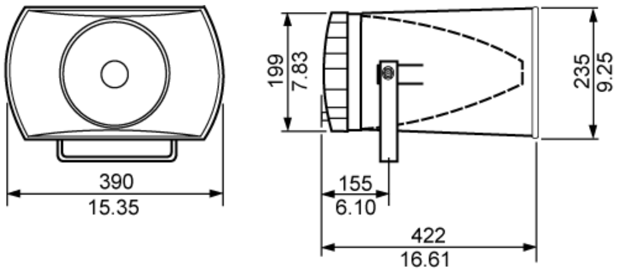
LBC 3403/16 Dimensions in mm (in)



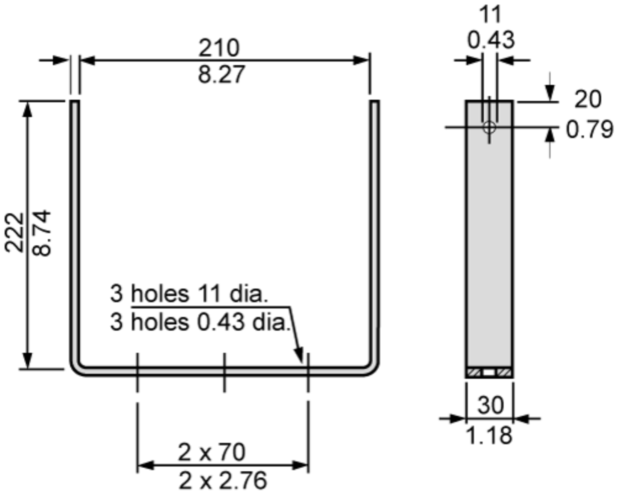
LBC 3404/16 Dimensions in mm (in)



LBC 3405/16 Dimensions in mm (in)



LBC 3406/16 Dimensions in mm (in)



All models mounting bracket dimensions in mm (in)

Ordering information

LBC 3403/16 Horn, Circular, 10" without Driver
Horn 10" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.
Order number **LBC3403/16**

LBC 3404/16 Horn, Circular, 15" without Driver
Horn 14" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.
Order number **LBC3404/16**

LBC 3405/16 Horn, Circular, 20" without Driver
Horn 20" without driver unit, circular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.
Order number **LBC3405/16**

LBC 3406/16 Horn, Rectangular, 9 x 15" without Driver
Horn 15 x 9" without driver unit, rectangular, high-impact ABS material, suitable for use with horn drivers LBN9000/00 (15 W), LBN 9001/00 (30 W), and LBN9003/00 (50 W), light gray RAL 7035.
Order number **LBC3406/16**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBN 9000/00 Driver Unit, 15 W
Horn driver 15 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.
Order number **LBN9000/00**

LBN 9001/00 Driver Unit, 30 W
Horn driver 30 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.
Order number **LBN9001/00**

LBN 9003/00 Driver Unit, 50 W
Horn driver 50 W, for use with LBC3403/16 (10"), LBC3404/16 (14"), LBC3405/16 (20"), and LBC3406/16 (15 x 9") horns.
Order number **LBN9003/00**

LBC 3700/00 Horn Loudspeaker

Features

- High quality music horn for excellent speech and music reproduction
- Two-way system
- High sensitivity
- Wide opening angle
- Simple power setting

The Bosch LBC 3700/00 Horn Loudspeaker features an extended frequency range and high sensitivity which makes it ideal for high quality speech and music reproduction. The wide opening angle ensures even sound distribution, so fewer horns are needed to cover a given area.

Functions

The rectangular horn features a unique combination of a re-entrant horn with two transducers, one for low- and the other for high frequencies, resulting in breathtaking sound clarity.
The horn is weather protected and can be used in areas with high humidity. It is therefore suitable for outdoor applications such as swimming pools, sports stadiums, leisure parks, cruise ships, schools and train stations, as well as for indoor public address. Finished in light grey RAL 7035 color, the ABS horn is both stylish and lightweight.

Certifications and approvals

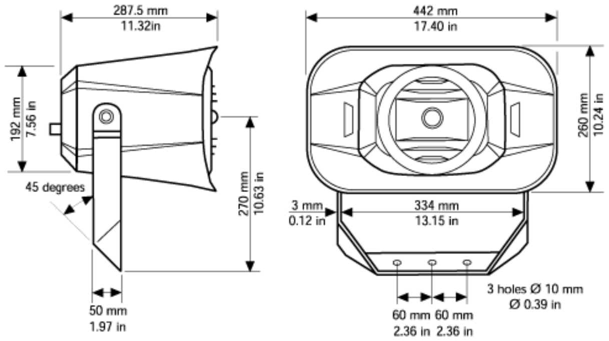
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 65
Self-extinguishing ABS	acc. to UL 94 V0

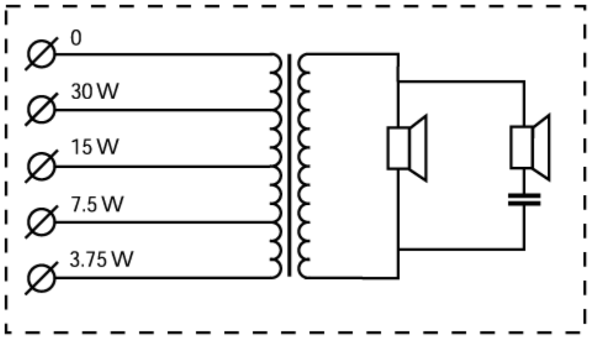
Region	Certification	
Europe	CE	Declaration of Conformity

Installation/configuration notes

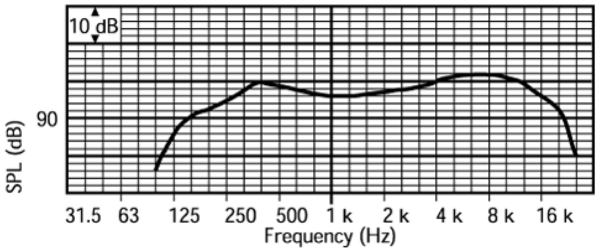
The 100 V horn loudspeaker includes a transformer with taps on the primary winding for different power settings. Nominal full-power, half-power, quarter-power or eight-power radiation (i.e. in 3 dB steps) can easily be selected by connected the 100 V line to the appropriate tap.
The horn loudspeaker is supplied with a sturdy aluminum (corrosion resistant) mounting bracket allowing the sound beam to be accurately directed.



Dimensions in mm (in)



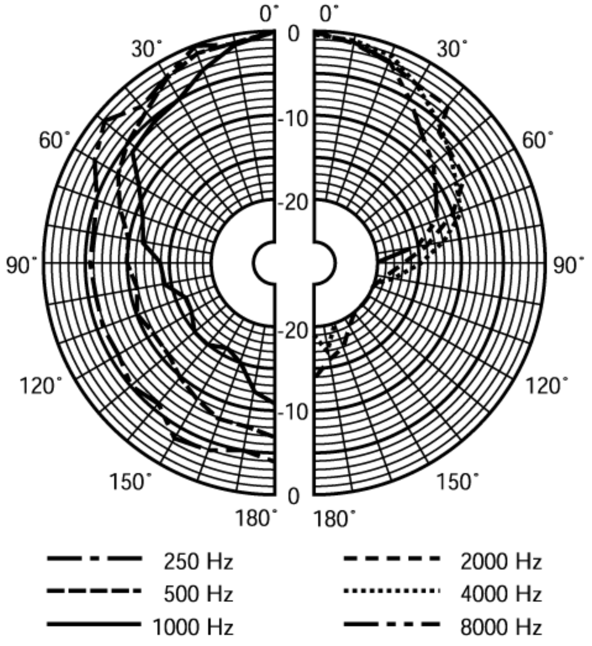
Circuit diagram



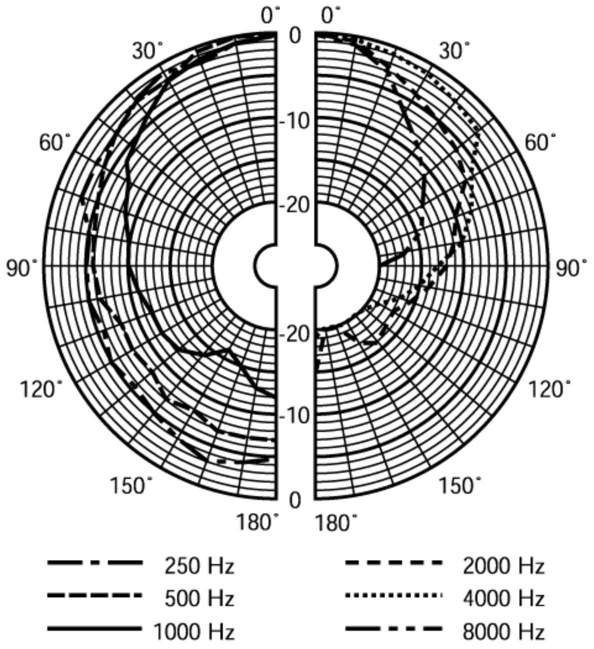
Frequency response

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	88	97	97	97	98	100	102
SPL max.	103	112	112	112	113	115	117
Q-factor	1.4	2.2	3.7	7.1	8.5	7.4	16.2
Efficiency	0.6	2.8	1.7	0.9	0.9	1.7	1.2
H. angle	360	360	120	105	85	90	65
V. angle	360	360	200	110	100	125	55

Acoustical performance specified per octave



Polar diagram horizontal (measured with pink noise)



Polar diagram vertical (measured with pink noise)

Technical specifications

Electrical*

Maximum power	45 W
Rated power	30 / 15 / 7.5 / 3.75 W
Sound pressure level at 30 W / 1 W (1 kHz, 1 m)	112 dB / 97 dB (SPL)
Sound pressure level at 30 W / 1 W (2 kHz, 1 m)	113 dB / 98 dB (SPL)
Effective frequency range (-10 dB)	125 Hz to 20 kHz
Opening angle	1 kHz / 4 kHz (-6 dB)
horizontal	105° / 90°
vertical	110° / 125°
Rated voltage	100 V
Rated impedance	333 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	260 x 442 x 287.5 mm (10.2 x 17.4 x 11.3 in)
Weight	5 kg (11 lb)
Color	Light grey (RAL 7035)
Cable diameter	6 mm to 8 mm (0.24 in to 0.31 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3700/00 Horn Loudspeaker
30 W, light grey
Order number **LBC3700/00**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 3428/00 Horn Loudspeaker

Features

- ▶ Suitable for marine and industrial applications
- ▶ Glass reinforced polyester with strong, fire-retardant qualities
- ▶ Reduced maintenance costs
- ▶ Corrosion and chemical resistant
- ▶ Water-and dust-protected to class IP 66 and IP 67

The Bosch LBC 3428/00 Horn Loudspeaker is specifically designed for excellent sound reproduction in marine applications and other industrial environments. It is rugged, water- and dust-protected, and resistant to the corrosive effects of seawater and most industrial atmospheres. Suitable for both stationary and mobile systems, its strength and good acoustic performance also makes it ideal for general commercial and industrial applications.

Functions

The Horn Loudspeaker is made from a UV-stable, glass-reinforced polyester (GRP). This strong, fire-resistant and corrosion- resistant material is very reliable and reduces maintenance costs. GRP is also chemical resistant and thermally stable, making it ideal for even the harshest environments. The horns are weather-proof, and incorporate stainless steel mounting brackets with cover screws to increase corrosion resistance. They are fitted with dual 20 mm gland entries (one gland is supplied as standard) to facilitate loop-through connection.

Certifications and approvals

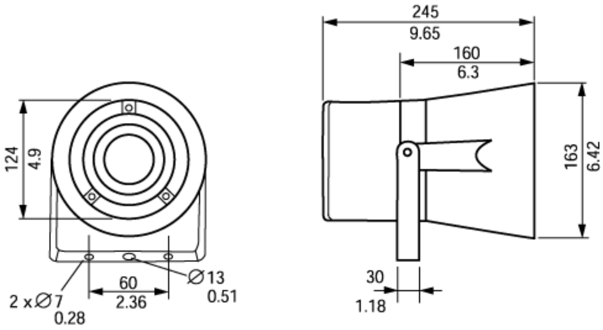
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 continuous hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures improved reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and lessens the chance of failure or performance deterioration.

Safety	acc. to EN 60065
Water and dust protection	acc. to IEC 60529, IP 66 and IP 67

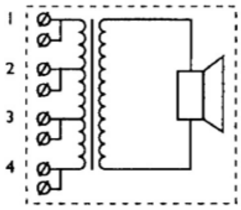
Region	Certification
Europe	CE

Installation/configuration notes

The Horn Loudspeaker includes a built-in transformer with taps on the primary winding for different power settings.
The Horn Loudspeaker is supplied with a sturdy mounting bracket allowing the sound beam to be accurately directed. The bracket has a ratchet facility to ensure it remains correctly positioned.

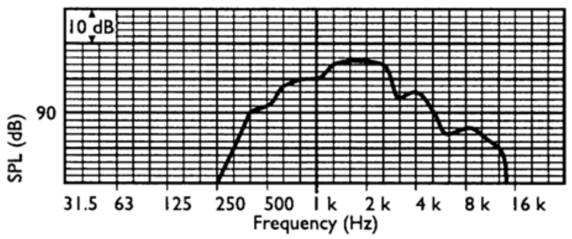


Dimensions in mm (in)

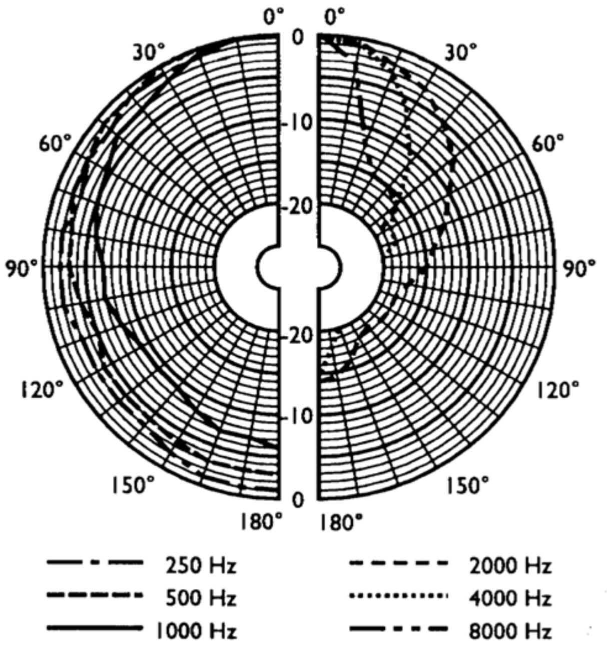


Transformer tappings		Power
Common	Phase	15 W
1	2	15.0
2	3	7.5
3	4	5.0
1	3	4.0
2	4	2.0
1	4	0.8

Circuit diagram



Frequency response



Polar diagram (measured with pink noise)

	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
SPL 1.1	-	79	96	102	105	98	87
SPL max.	-	91	108	114	117	110	99
Q-factor	-	1.5	1.9	3.2	6.8	15.8	51.3
Efficiency	-	0.07	2.7	6.2	5.9	0.5	0.1
H. angle	-	360	360	160	90	55	25
V. angle	-	360	360	160	90	55	25

Acoustical performance specified per octave

Parts included

Quantity	Component
1	LBC 3428/00 Horn Loudspeaker
1	Cable gland

Technical specifications

Electrical*

Maximum power	22.5 W
Rated power	15 / 7.5 / 5 / 4 / 2 / 0.8 W
Sound pressure level at 15 W / 1 W (1 kHz, 1 m)	114 dB / 102 dB (SPL)
Effective frequency range (-10 dB)	380 Hz to 5.5 kHz
Opening angle at 1 kHz/4 kHz (-6 dB)	160° / 55°
Rated voltage	100 V
Rated impedance	667 ohm
Connector	Screw terminal block

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x Dmax)	245 x 163 mm (9.6 x 6.4 in)
Weight	2.6 kg (5.72 lb)
Color	Light grey (RAL 7035)
Cable diameter	8 mm to 12 mm (0.31 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 3428/00 Horn Loudspeaker
Horn loudspeaker 15 W, circular, GRP material, suitable for marine and industrial applications, water and dust protected IP67, light gray RAL 7035.
Order number **LBC3428/00**

Accessories

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 343x/00 Horn Loudspeakers

BOSCH
BOSCH

Features

- ATEX approved
- CENELEC compliant
- BASEEFA certified
- Glass reinforced polyester with strong, fire retardant properties
- Reduced maintenance costs

The Bosch LBC 3437/00 and LBC 3438/00 Horn Loudspeakers are specifically designed and approved for installations where explosive gas-air mixtures are likely to be present. They are suitable for use in all gas groups including hydrogen.

System overview

The LBC 3437/00 has a power rating of 15 W, the LBC 3438/00 has 25 W.

Functions

The flame paths, flare and body of both loudspeakers are constructed from a UV stable glass reinforced polyester (GRP). This strong, fire and corrosion resistant material offers greater reliability and reduced maintenance costs. GRP is also chemical resistant and thermally stable, making it ideal for even the harshest environments. The horns are weather proof, and incorporate stainless steel mounting brackets and captive cover screws, and a stainless steel sinter, to increase their resistance to corrosion. They are supplied with an EExdIIC gland as standard.

Certifications and approvals

All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

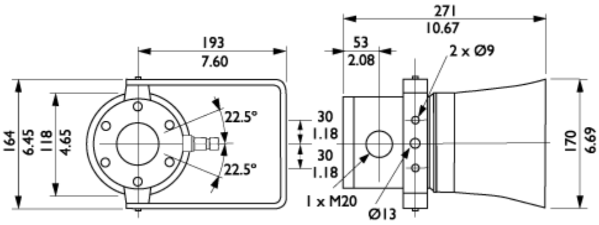
Self-Extinguishing	acc. to class UL 94 V1
Water and dust protection	acc. to EN 60529, IP 66 and IP 67
ATEX	Ex II 2 GD
BASEEFA *	EExd II C T5, zones 1 and 2 (LBC 3437/00) EExd II C T4, zones 1 and 2 (LBC 3438/00) Cert. No. BAS00ATEX2097X
CENELEC **	EN 50014 EN 50018

* BASEEFA = British Approved Service for Electrical Equipment in Flammable Atmospheres
** CENELEC = European Committee for Electrotechnical Standardization

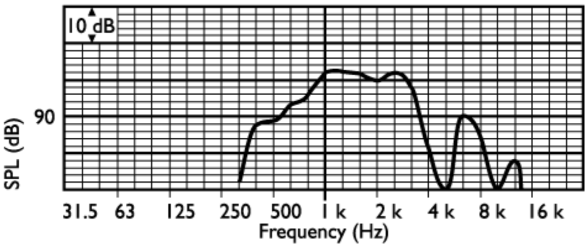
Region	Certification
Europe	CE
	BASEEFA

Installation/configuration notes

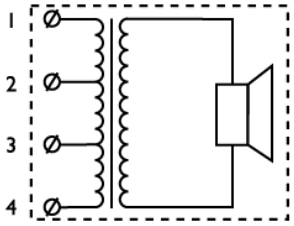
The horn loudspeakers include a built-in transformer with taps on the primary winding for different power settings.
The horn loudspeakers are supplied with a sturdy mounting bracket allowing the sound beam to be accurately directed. The bracket has a ratchet facility to ensure it stays correctly positioned.



Dimensions in mm (in)

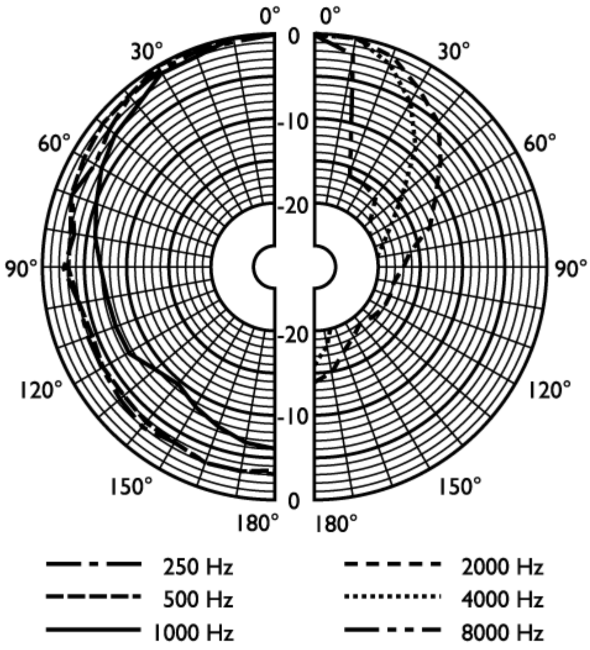


Frequency response



Transformer tappings		Rated power	
Common	Phase	15 W	25 W
1	2	15.0	25.0
2	3	7.5	12.5
3	4	5.0	6.0
1	3	4.0	4.0
2	4	2.0	2.0
1	4	0.8	1.0

Circuit diagram



Polar diagram (measured with pink noise)

Parts included

Quantity	Component
1	LBC 343x/00 Horn Loudspeaker
1	EExd II C gland

Technical specifications

Electrical*

Product	LBC 3437/00	LBC 3438/00
Maximum power	22.5 W	37.5 W
Rated power	15/7.5/5/4/2/0.8 W	25/12.5/6/4/2/1 W
SPL at RP / 1 W (1 kHz, 1 m)	112 / 100 dB (SPL)	114 / 100 dB (SPL)
Effective frequency range (-10 dB)	420 Hz to 3.5 kHz	420 Hz to 3.5 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	160° / 60°	160° / 60°
Rated voltage	100 V	100 V
Rated impedance	667 ohm	400 ohm
Connector	Screw terminal	Screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (L x D max)	271 x 170 mm (10.7 x 6.7 in)	271 x 170 mm (10.7 x 6.7 in)
Weight	5 kg (11 lbs)	5 kg (11 lbs)
Color	Natural black	Natural black
Cable diameter	7.5 mm to 11.9 mm (0.3 in to 0.5 in)	7.5 mm to 11.9 mm (0.3 in to 0.5 in)

Environmental

Operating temperature	-20 °C to +55 °C (-4 °F to +131 °F)	-20 °C to +50 °C (-4 °F to +122 °F)
Storage temperature	-40 °C to +70 °C (-40 °F to +158 °F)	-40 °C to +70 °C (-40 °F to +158 °F)
Relative humidity	<95%	<95%

Ordering information

LBC 3437/00 Horn Loudspeaker
Horn loudspeaker 15 W, circular, GRP material, flame-proof, ATEX EX II 2 GD approved, BASEEFA EExd II C T5, zones 1 and 2 , water and dust protected IP67, natural black.
Order number **LBC3437/00**

LBC 3438/00 Horn Loudspeaker
Horn loudspeaker 25 W, circular, GRP material, flame-proof, ATEX EX II 2 GD approved, BASEEFA EExd II C T4, zones 1 and 2 , water and dust protected IP67, natural black.
Order number **LBC3438/00**

LH1-UC30E Music Horn Loudspeaker

Features

- Excellent speech and music reproduction
- Two-way system
- Attractive ABS housing
- Provisions for internal mounting of the optional line / loudspeaker supervision board
- EN 54-24 certified

The Bosch LH1-UC30E Music Horn Loudspeaker features a two-way system, resulting in an extended frequency range and high sensitivity which makes it ideal for high quality speech and music reproduction.

Functions

The rectangular horn features a unique combination of a re-entrant horn with two transducers, one for low– and the other for high frequencies, resulting in breathtaking sound clarity.
The horn is weather protected and can be used in areas with high humidity. It is therefore suitable for outdoor applications such as sport grounds, sports stadiums, leisure parks, exhibition areas and passenger terminals, as well as for indoor public address.
The ABS horn loudspeaker and aluminum bracket are finished in light grey (RAL 7035).
The LH1-UC30E is designed for use in voice alarm systems and is EN 54-24 certified and compliant with BS 5839-8 and EN 60849.
The horn loudspeaker has built-in protection to ensure that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained, ensuring loudspeakers in other areas can still be used to inform people of the situation. The horn loudspeaker has ceramic terminal blocks, thermal fuse and heat resistant high temperature wiring.
It has provision for internal mounting of the optional line / loudspeaker supervision boards.

Certifications and approvals

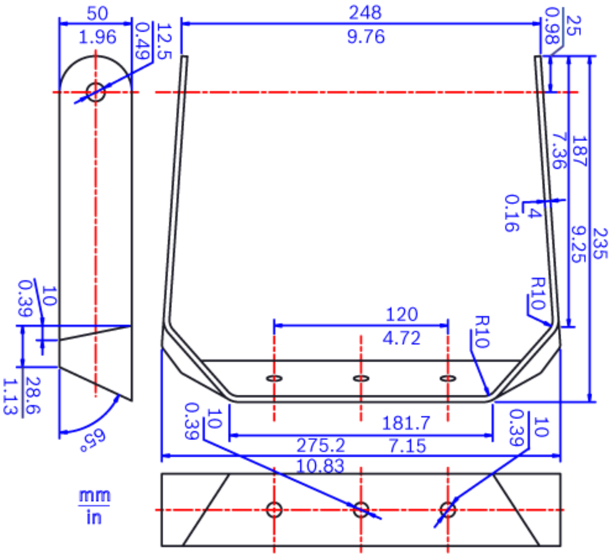
All Bosch loudspeakers are designed to withstand operating at their rated power for 100 hours in accordance with IEC 268-5 Power Handling Capacity (PHC) standards. Bosch has also developed the Simulated Acoustical Feedback Exposure (SAFE) test to demonstrate that they can withstand two times their rated power for short durations. This ensures extra reliability under extreme conditions, leading to higher customer satisfaction, longer operating life, and much less chance of failure or performance deterioration.

Safety	acc. to EN 60065
Emergency	acc. to EN 54-24 / BS 5839-8 / EN 60849
Self-extinguishing ABS	acc. to UL 94 V 0
Water and dust protection	acc. to IEC 60529, IP 66
Wind-force	acc. to NEN 6702 + A1, Bft 11

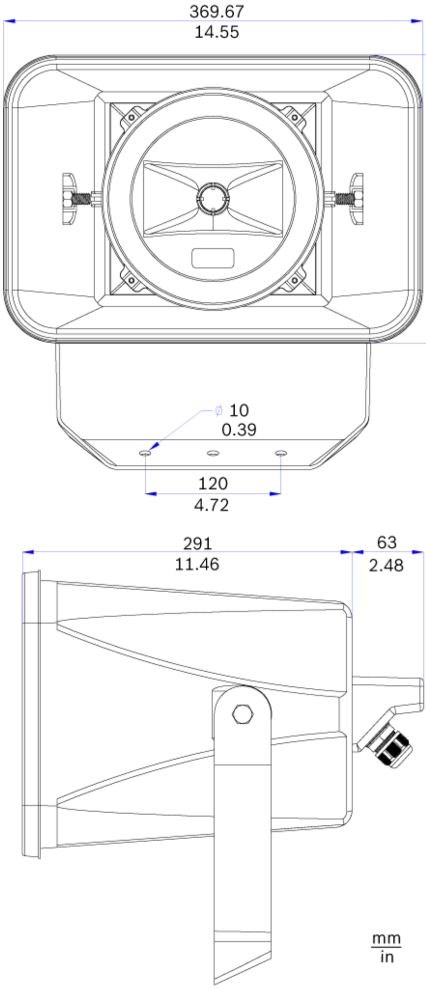
Region	Certification
Europe	CE
	CPD

Installation/configuration notes

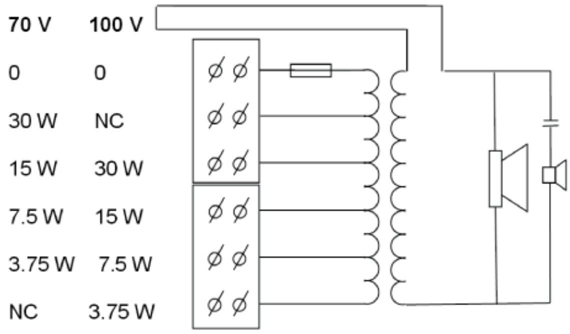
The horn loudspeaker includes a transformer for both 70 V and 100 V with taps on the primary winding for different power settings.
Nominal full-power, half-power, quarter-power or eight-power radiation (i.e. in 3 dB steps) can easily be selected by connecting to the appropriate tap.
The connection cable is fed out through an ABS cable gland (PG13.5) in the rear cover. For loop through connection, the rear cover is fitted with a second hole (covered as standard supplied)
In the rear cover, an provision for inside mounting of the optional line/ loudspeaker supervision board is available.



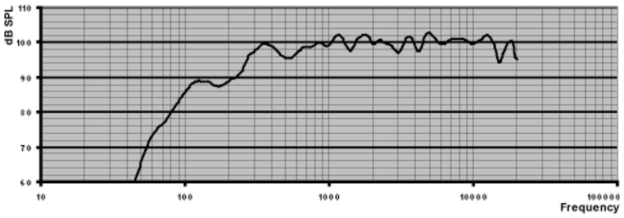
Bracket dimensions


369.67
14.55
254.46
10.2
Ø 10
0.39
120
4.72
291
11.46
63
2.48
mm
in

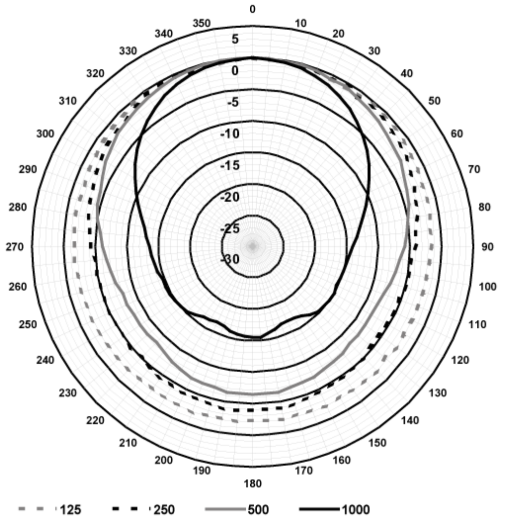
Dimensions


70 V
100 V
0
0
30 W
NC
15 W
30 W
7.5 W
15 W
3.75 W
7.5 W
NC
3.75 W

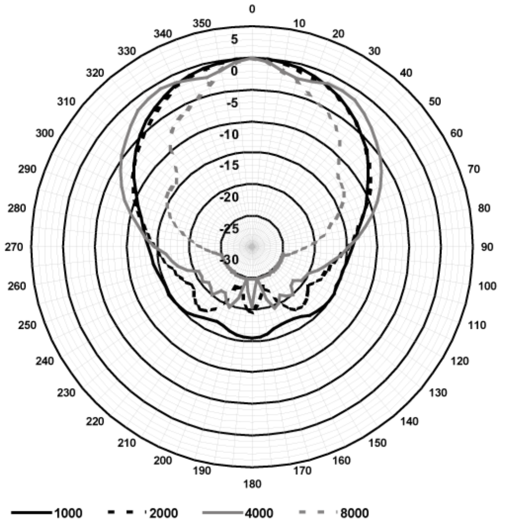
Circuit diagram



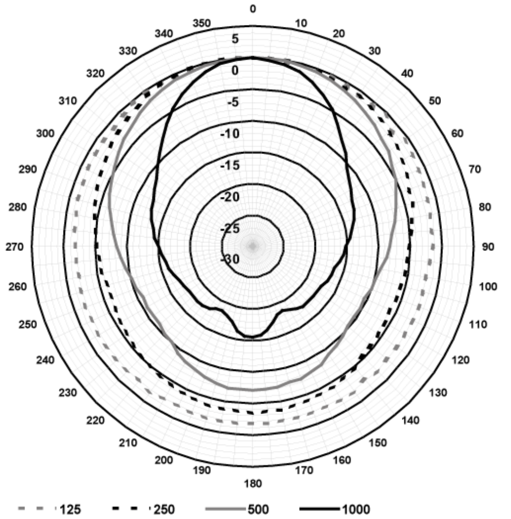
Frequency response



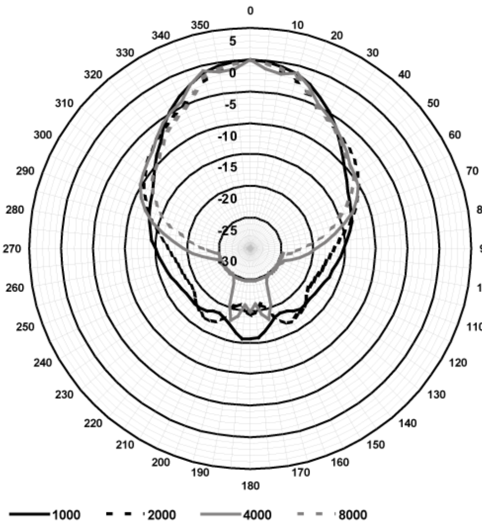
Vertical polar diagram (pink noise octave, normalized at 0º axis)



Vertical polar diagram (pink noise octave, normalized at 0º axis)



Horizontal polar diagram (pink noise octave, normalized at 0º axis)



Horizontal polar diagram (pink noise octave, normalized at 0º axis)

Octave band sensitivity *

	Octave SPL 1W/1m	Total octave SPL 1W/1m	Total octave SPL Pmax/1m
125 Hz	87.8	-	-
250 Hz	95.5	-	-
500 Hz	97.6	-	-
1000 Hz	100.1	-	-
2000 Hz	100.4		
4000 Hz	100.4	-	-
8000 Hz	100.2	-	-
A-weighted	-	97.1	110.6
Lin-weighted	-	97.8	111.7

Octave band opening angles

	Horizontal	Vertical
125 Hz	360	360
250 Hz	360	360
500 Hz	141	180
1000 Hz	68	98
2000 Hz	60	96
4000 Hz	68	118
8000 Hz	54	55

Acoustical performance specified per octave
* (all measurements are done with a pink noise signal; the values are in dBSPL).

Parts included

1	LH1-UC30E
1	PG13.5 cable gland (fitted)

Technical specifications

Electrical*

Maximum power	45 W
Rated power (PHC)	30 W
Power tapping	30 / 15 / 7.5 / 3.75 W
Sound pressure level at rated power / 1 W (1 kHz, 1 m)	115 / 100 dB (SPL)
Effective frequency range (- 10 dB)	212 Hz to 20 kHz
Opening angle at 1 kHz / 4 kHz (-6 dB)	
Horizontal	68° / 68°
Vertical	98° / 118°
Rated input voltage	70 / 100 V
Rated impedance	167 / 333 ohm
Connector	6-pole screw terminal

* Technical performance data acc. to IEC 60268-5

Mechanical

Dimensions (H x W x D)	255 x 370 x 354 mm (10.04 x 14.56 x 13.93 in)
Weight	5.5 kg (12.45 lb)
Color	Light grey (RAL 7035)
Material (horn / bracket)	ABS / Aluminum
Cable diameter	6 mm to 12 mm (0.24 in to 0.47 in)

Environmental

Operating temperature	-25 ºC to +55 ºC (-13 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

CE

1438

Bosch Security Systems BV
Torenallee 49, 5617BA Eindhoven, The Netherlands
10
1438-CPD-0252

EN 54-24:2008

Loudspeaker for voice alarm systems
for fire detection and fire alarm systems for buildings

Music Horn Loudspeaker 30W
LH1-UC30E
Type B

Ordering information

LH1-UC30E Music Horn Loudspeaker
Music horn loudspeaker 30 W, ABS material, two-way system for high-quality speech and music reproduction, water and dust protected IP65, EN54-24 certified, light gray RAL 7035.
Order number **LH1-UC30E**

LBC 1252/00 Wall Mounting Bracket

The LBC 1252/00 wall mounting bracket is for mounting loudspeakers directly onto a surface, such as a wall or ceiling. It is made from die-cast aluminum, and includes two lockable swivel joints to allow movement in two perpendicular planes for precise positioning.

Technical specifications

Mechanical

Approx. dimensions (H x W x D)	55 x 85 x 168 mm (2.2 x 3.3 x 6.6 in)
Weight	395 g (0.87 lb)
Max. load	10 kg (22 lb)
Material	Die-cast aluminum
Finish	Glass-blast matt
Mounting hole pitch	65 mm (2.6 in)
Mounting hole dia.	6 mm (0.24 in)

Ordering information

LBC 1252/00 Wall Mounting Bracket
for mounting loudspeakers directly onto a surface, such as a wall or ceiling.
Order number **LBC1252/00**

LBC 1256/00 EVAC Connection Adapter

The LBC 1256/00 is an EVAC connection adapter, to be installed in series with the 100 V primary connection of a loudspeaker unit, changing the loudspeaker into a BS 5839-8 compliant unit. This additional connection adapter ensures that, in the event of a fire, damage to the loudspeaker does not result in failure of the circuit to which it is connected. In this way, system integrity is maintained. The connection adapter consists of a 3-pole ceramic screw terminal block with a pre-mounted thermal fuse. It can replace a connection terminal or be mounted in a standard connection box. The LBC 1256/00 consists of 100 pieces.

Certifications and approvals

Region	Certification
Europe	CE

Technical specifications

Mechanical

Approx. dimensions	19 x 37 x 22 mm (0.75 x 1.46 x 0.87 in)
Type	3-pole screw connector
Material	Ceramic
Thermal fuse	150 °C
Pack contents	100 pieces
Weight	40 g (1.4 oz)

Ordering information

LBC 1256/00 EVAC Connection Adapter
Emergency connection adapter, 3-pole screw ceramic connector with a pre-mounted thermal fuse, to be installed in series with the 100 V primary connection of a loudspeaker unit, set of 100 pieces.
Order number **LBC1256/00**

LBC 1259/01 Universal Floorstand

Features

- Multi-purpose, lightweight aluminum stand
- For mounting a loudspeaker, wireless access point or Integrus radiator
- Double-braced folding base
- Reducer flange for different mountings
- Hand-adjustable

This universal floorstand provides effective mounting solutions for loudspeaker installations, a Wireless Access Point of the DCN-Wireless system, or a radiator of the Integrus digital language distribution system. They are manufactured and finished to the same high standards as all Bosch products, assuring excellent quality and guaranteed compatibility throughout the range. The LBC 1259/01 is suited to a wide range of applications where a secure yet transportable mounting solution is required.

Functions

Adjustable and safe

The LBC 1259/01 floorstand is hand-adjustable using a spring-loaded locking screw for heights between 1.4 and 2.2 m (4.6 and 7.2 ft). An extra safety bolt on the support can be tightened to ensure the stand remains extended.
This lightweight stand has a double-braced folding base for extra strength, and a wide leg span to ensure stability.

Adaptable

The floorstand is standard supplied with a 36 mm (1.42 in) reducer flange with an M10 x 12 threaded pin to mount different sized equipment, and with an M10 knob to fix the Wireless Access Point mounting bracket.

Accessories

For storage and ease of transport, a carrier bag is available with two inside compartments with separate zippers for holding two universal floorstands (LBC 1259/01). The bag, with Bosch logo, is made from sturdy black weather-proof nylon. Two handles are fitted for carrying the bag by hand or over the shoulder.

LM1-CB Carrier Bag (optional)

Installation/configuration notes

LBC 1259/01 with DCN Wireless Access Point, LBB 451x/00 Infra--red Radiator and XLA 3200 Line Array Loudspeaker

Parts included

Quantity	Component
1	LBC 1259/01 Universal Floorstand
1	36 mm (1.42 in) reducer flange with (M10 x 12) threaded pin
1	M10 securing knob for WAP mounting bracket
2	Metal filler rings

Technical specifications

Mechanical

Length: standing	1.4 to 2.2 m (4.6 to 7.2 ft)
Length: folded	1.24 m (4.06 ft)
Width: legs extended	1.32 m (4.33 ft)
Width: legs folded	130 mm (5.1 in)
Weight	4.8 kg (10.58 lb)
Max. centric load	50 kg (110.2 lb)
Material	Aluminum/steel

Color	White aluminum (RAL 9006) with black parts
Tube diameter	35 mm (1.37 in)
Carrier bag accessory	
Dimensions (L x D)	1.25 m x 27 mm (49 x 1.06 in)
Weight	750 g (1.65 lb)
Color	Black with light grey handles
Material	Nylon

Ordering information

LBC 1259/01 Universal Floorstand
Universal floor stand lightweight aluminum construction, foldable, M10 x 12 reducer flange.
Order number **LBC1259/01**

Accessories

LM1-CB Carrier Bag for two floorstands
Carrying bag for storing and transporting two floor stands.
Order number **LM1-CB**

LBC 1085/00 Loudspeaker Cable

Technical specifications

Mechanical

Length	100 m (328 ft) reels
Type	Twin-core (2 x 0.75 mm^2)
Color	Black

Ordering information

LBC 1085/00 Loudspeaker Cable
100 m (328 ft) reels
Order number **LBC1085/00**

LBC 14x0/x0 MK Volume Controls and LBC 1430/10 Program Selector

Features

- 12 W, 36 W and 100 W versions
- Available in power-save or failsafe versions
- Built-in 24 VDC override relay
- Continuous rotating system
- Suitable for 3-wire and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

Operation

Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting.

The volume controls come in three versions according to power rating: 12 W, 36 W, and 100 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.

Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call.

The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.

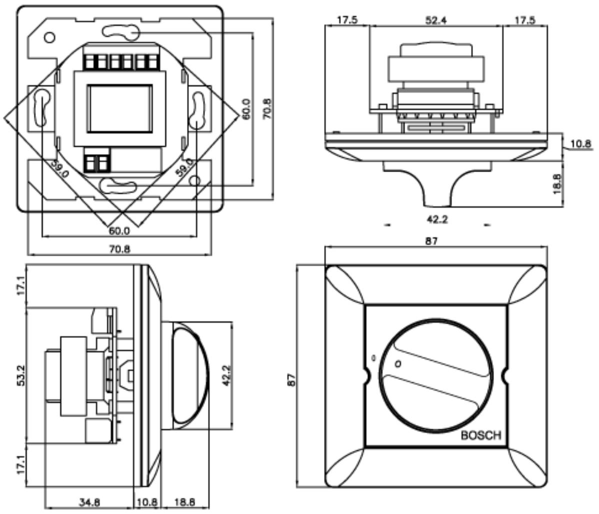
Interconnections

Screw connections

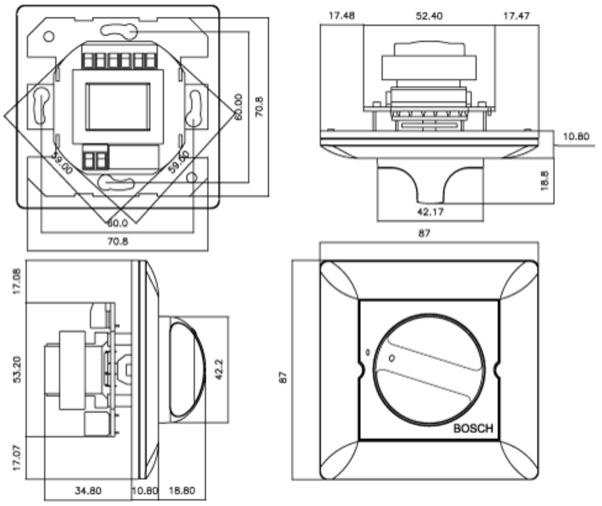
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

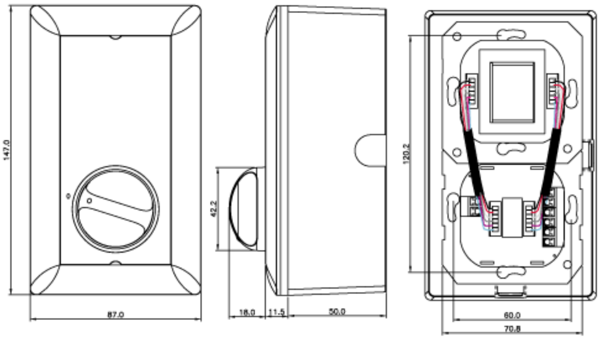
Installation/configuration notes


17.5
52.4
17.5
60.0
70.8
59.0
59.0
10.8
18.8
42.2
87
17.1
53.2
17.1
42.2
34.8
10.8
18.8
87
BOSCH

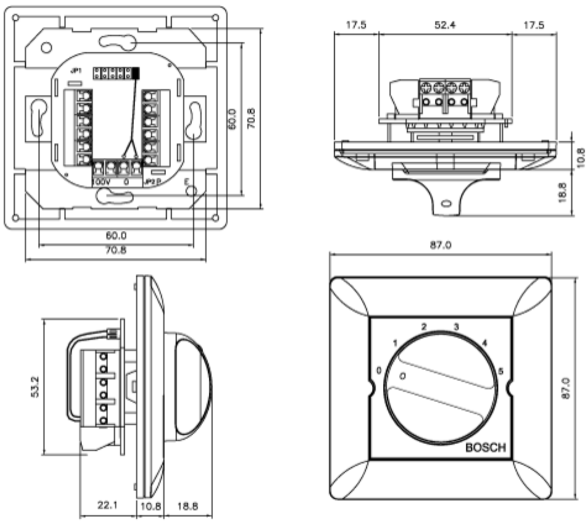
LBC 1400/10 and LBC 1400/20 dimensions in mm


17.48
52.40
17.47
60.00
70.8
59.00
59.00
60.0
70.8
10.80
18.8
42.17
87
17.08
53.20
17.07
42.2
34.80
10.80
18.80
87
BOSCH

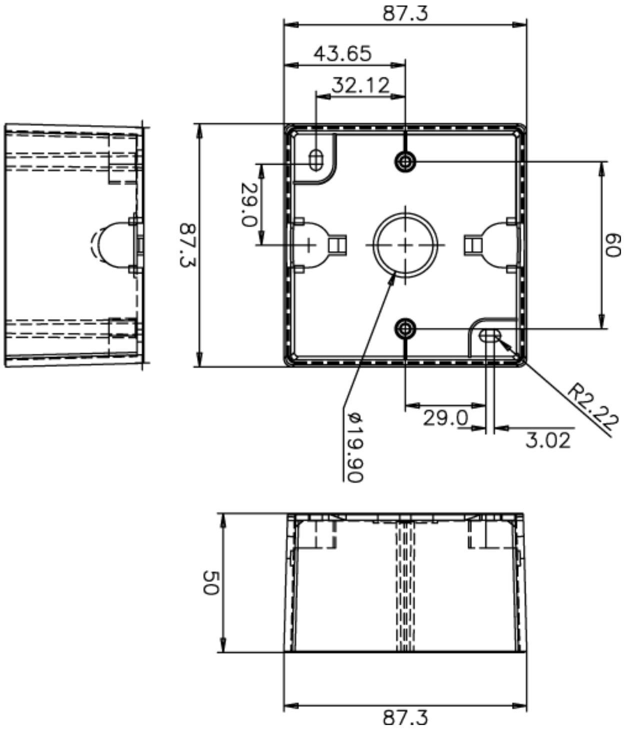
LBC 1410/10 and LBC 1410/20 dimensions in mm


147.0
87.0
42.2
18.0
11.5
50.0
120.2
60.0
70.8

LBC 1420/10 and LBC 1420/20 dimensions in mm

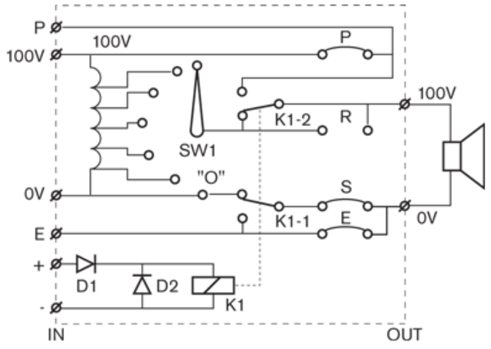

17.5
52.4
17.5
60.0
70.8
10.8
18.8
87.0
53.2
22.1
10.8
18.8
BOSCH

LBC 1430/10 dimensions in mm

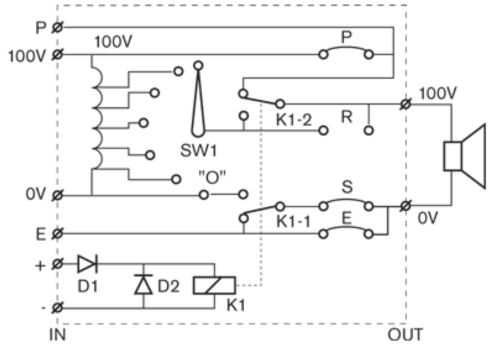

87.3
43.65
32.12
29.0
87.3
60
R2.22
29.0
3.02
ø19.90
50
87.3

LM1-SMB-MK dimensions in mm

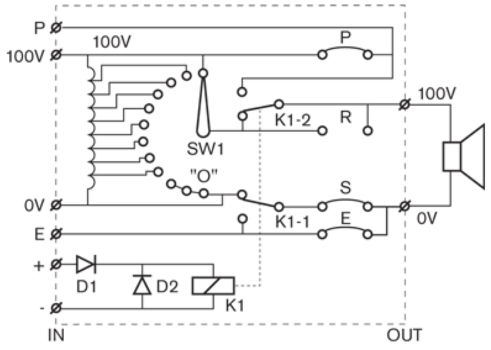
LM1-SMB-MK detail


P
100V
100V
0V
E
+
-
SW1
"O"
K1-2
R
K1-1
S
E
P
100V
0V
D1
D2
K1
IN
OUT

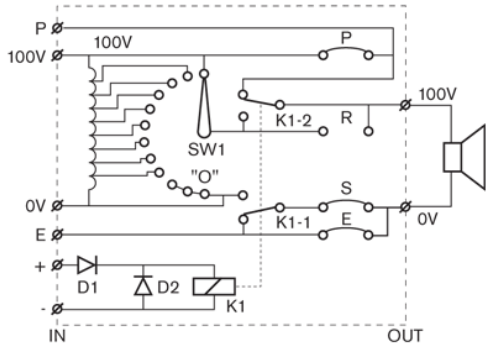
LBC 1400/10 circuit diagram


P
100V
100V
0V
E
+
-
SW1
"O"
K1-2
R
K1-1
S
E
P
100V
0V
D1
D2
K1
IN
OUT

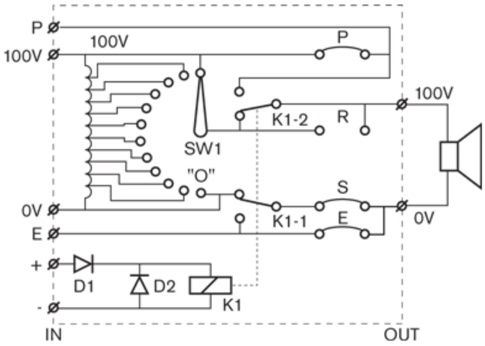
LBC 1400/20 circuit diagram


P
100V
100V
0V
E
+
-
SW1
"O"
K1-2
R
K1-1
S
E
P
100V
0V
D1
D2
K1
IN
OUT

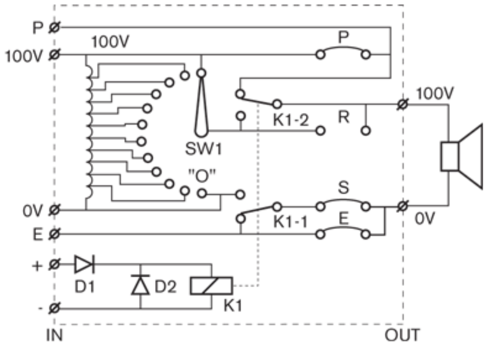
LBC 1410/10 circuit diagram


P
100V
100V
0V
E
+
-
SW1
"O"
K1-2
R
K1-1
S
E
P
100V
0V
D1
D2
K1
IN
OUT

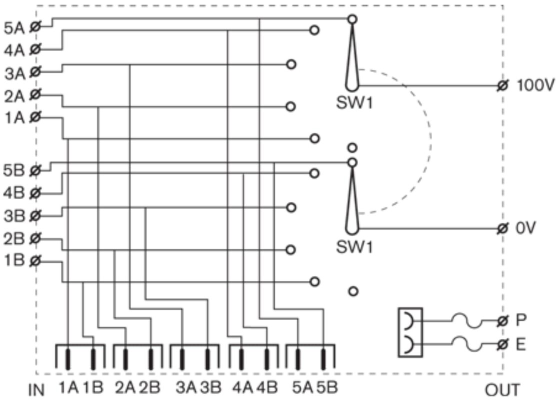
LBC 1410/20 circuit diagram


P
100V
100V
P
SW1
"O"
K1-2
R
100V
0V
E
S
K1-1
E
0V
+
D1
D2
K1
-
IN
OUT

LBC 1420/10 circuit diagram


P
100V
100V
P
SW1
"O"
K1-2
R
100V
0V
E
S
K1-1
E
0V
+
D1
D2
K1
-
IN
OUT

LBC 1420/20 circuit diagram


5A
4A
3A
2A
1A
5B
4B
3B
2B
1B
SW1
SW1
100V
0V
P
E
IN
1A 1B
2A 2B
3A 3B
4A 4B
5A 5B
OUT

LBC 1430/10 circuit diagram

Technical specifications

Electrical

LBC 1400/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1410/10 and /20	
Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1420/10 and /20	
Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1430/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off

Mechanical

LBC 1400/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	226 g
Color	White (RAL 9010)
LBC 1410/10 and /20	
Dimensions (W x H x D)	87 x 87 x 45.6 mm
Weight	227 g
Color	White (RAL 9010)
LBC 1420/10 and /20	
Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)
LBC 1430/10	
Dimensions (W x H x D)	87 x 87 x 32.9 mm
Weight	125 g
Color	White (RAL 9010)
LM1-SMB-MK	
Dimensions (W x H x D)	87.3 x 87.3 x 50 mm
Weight	73 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 ºC to +55 ºC (+14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 1400/10 Volume Control
Volume control 12 W, MK installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1400/10**

LBC 1400/20 Volume Control
Volume control 12 W, MK installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1400/20**

LBC 1410/10 Volume Control
Volume control 36 W, MK installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1410/10**

LBC 1410/20 Volume Control
Volume control 36 W, MK installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1410/20**

LBC 1420/10 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/10**

LBC 1420/20 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/20**

LBC 1430/10 Program Selector
Program selector, MK installation type, 5 channel selection, white RAL 9010.
Order number **LBC1430/10**

Accessories

LM1-SMB-MK
Surface mounting box for volume controls LBC1400/10, LBC1400/20, LBC1410/10, LBC1410/20, and Program Selector LBC1430/10, white RAL 9010.
Order number **LM1-SMB-MK**

LBC 14xx/x0 U40 Volume Controls and LBC 1431/10 Program Selector

Features

- 12 W, 36 W and 100 W versions
- Available in power-save or failsafe versions
- Built-in 24 VDC override relay
- Continuous rotating system
- Suitable for 3 and 4-wire systems

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

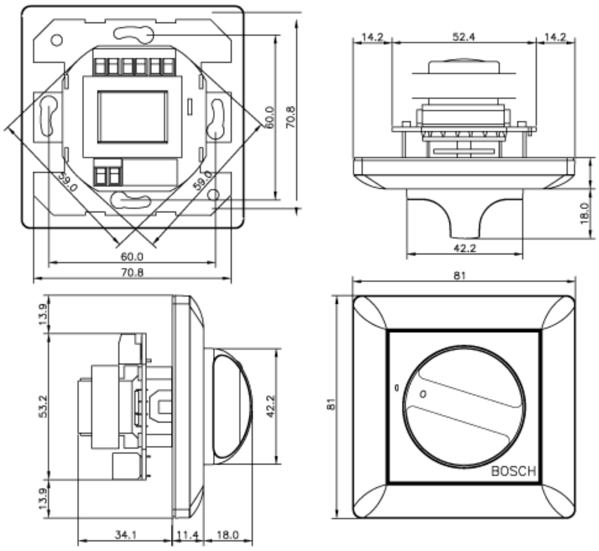
Operation
Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting.
The volume controls come in three versions according to power rating: 12 W, 36 W, and 100 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.
Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call.
The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.
The volume controls and program selectors can be combined with Gira standard 55 system switchers and accessories.

Interconnections
Screw connections

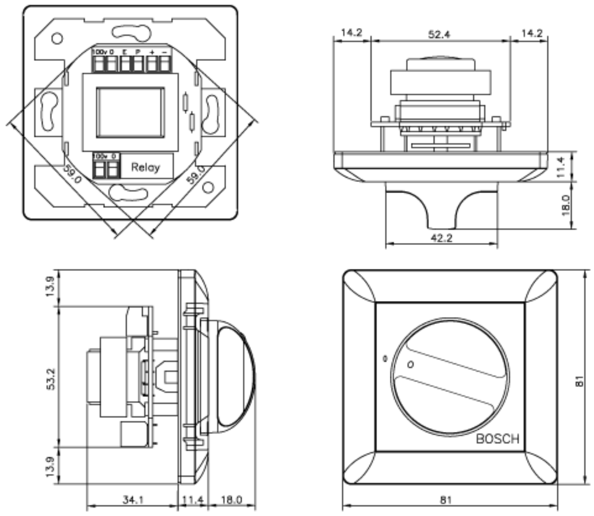
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 V0

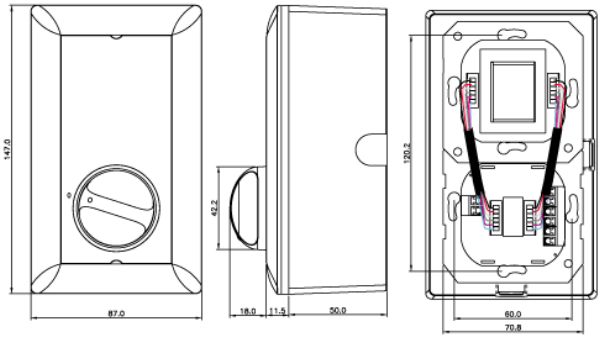
Installation/configuration notes



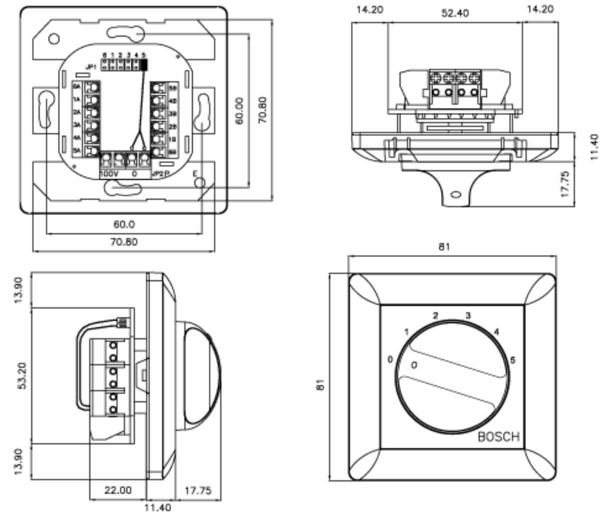
LBC 1401/10 and LBC 1401/20 dimensions in mm



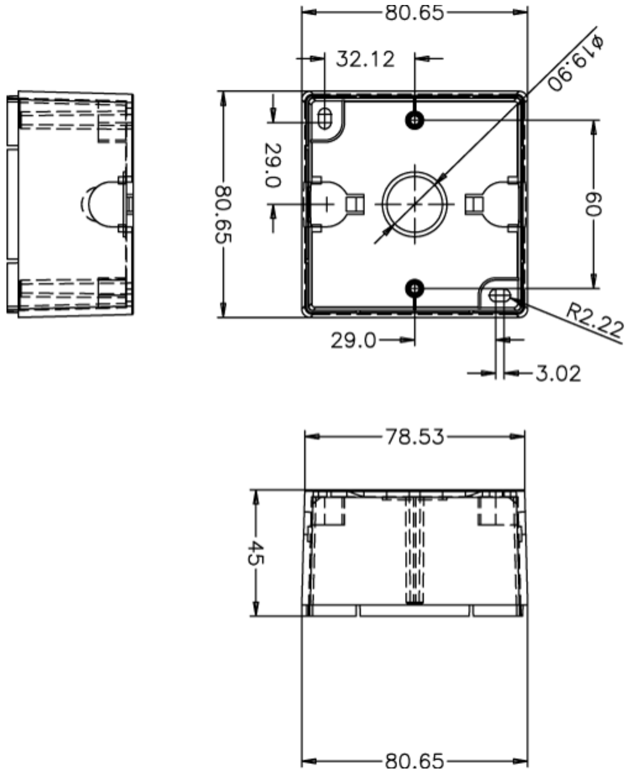
LBC 1411/10 and LBC 1411/20 dimensions in mm



LBC 1420/10 and LBC 1420/20 dimensions in mm

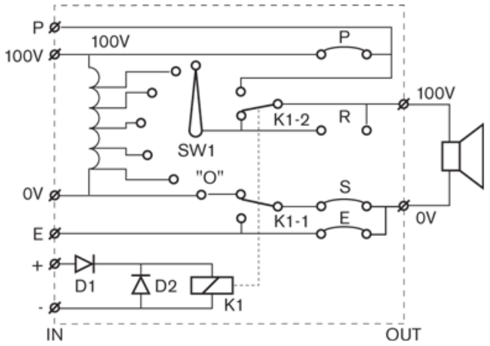

14.20
52.40
14.20
60.00
70.80
60.0
70.80
11.40
17.75
81
81
13.90
53.20
13.90
22.00
17.75
11.40
BOSCH

LBC 1431/10 dimensions in mm

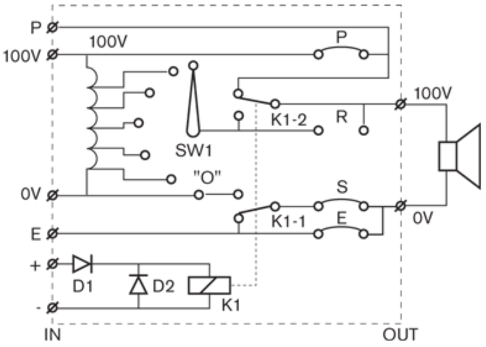

80.65
32.12
Ø19.90
29.0
80.65
60
R2.22
29.0
3.02
78.53
45
80.65

LM1-SMB-U40 dimensions in mm

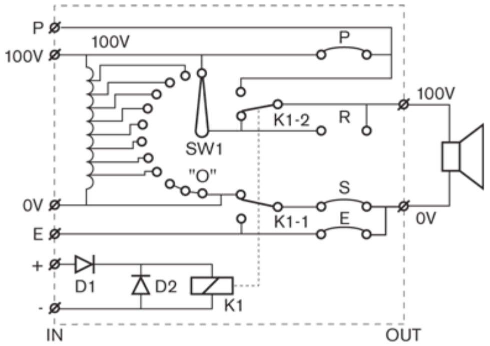
LM1-SMB-U40 detail


P
100V
100V
P
100V
K1-2
R
SW1
"O"
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

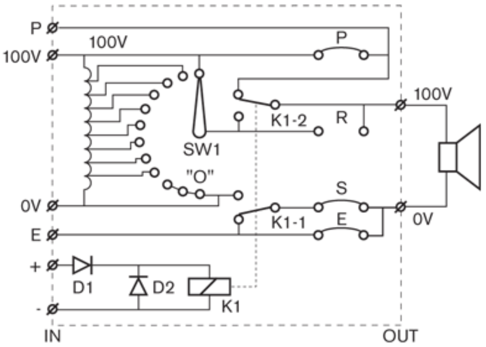
LBC 1401/10 circuit diagram


P
100V
100V
P
100V
K1-2
R
SW1
"O"
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

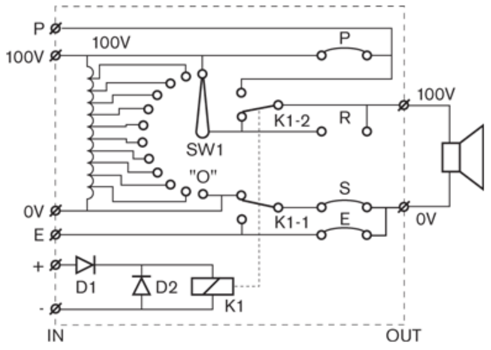
LBC 1401/20 circuit diagram


P
100V
100V
P
100V
K1-2
R
SW1
"O"
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

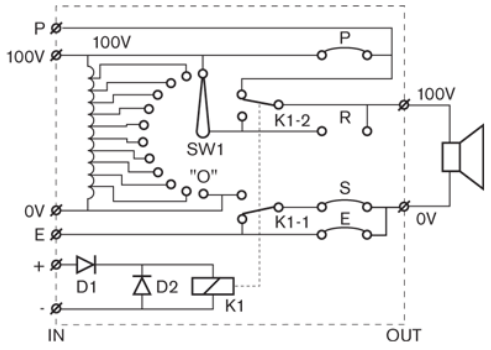
LBC 1411/10 circuit diagram


P
100V
100V
P
100V
K1-2
R
SW1
"O"
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

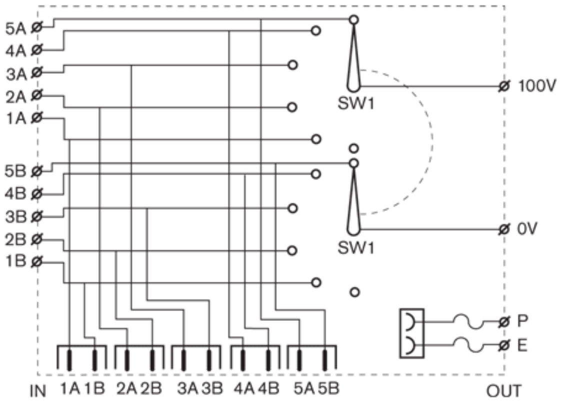
LBC 1411/20 circuit diagram


P
100V
100V
P
K1-2
R
100V
SW1
"O"
0V
E
S
K1-1
E
0V
+
D1
D2
K1
-
IN
OUT

LBC 1420/10 circuit diagram


P
100V
100V
P
K1-2
R
100V
SW1
"O"
0V
E
S
K1-1
E
0V
+
D1
D2
K1
-
IN
OUT

LBC 1420/20 circuit diagram


5A
4A
3A
2A
1A
SW1
100V
5B
4B
3B
2B
1B
SW1
0V
P
E
IN
1A 1B
2A 2B
3A 3B
4A 4B
5A 5B
OUT

LBC 1431/10 circuit diagram

Technical specifications

Electrical

LBC 1401/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1411/10 and /20	
Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1420/10 and /20	
Rated power	100 W
Input voltage	100 V
Attenuation steps	10 x 2 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
Connector	Screw terminal
LBC 1431/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off
Connector	Screw terminal

Mechanical

LBC 1401/10 and /20	
Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	214 g
Color	White (RAL 9010)
LBC 1411/10 and /20	
Dimensions (W x H x D)	81 x 81 x 45.5 mm
Weight	217 g
Color	White (RAL 9010)
LBC 1420/10 and /20	
Dimensions (W x H x D)	87 x 147 x 61.5 mm
Weight	512 g (including surface mounting box)
Color	White (RAL 9010)
LBC 1431/10	
Dimensions (W x H x D)	81 x 81 x 33.4 mm
Weight	110 g
Color	White (RAL 9010)
LM1-SMB-U40	
Dimensions (W x H x D)	80.65 x 80.65 x 45 mm

Weight	60 g
Color	White (RAL 9010)

Environmental

Operating temperature	-10 ºC to +55 ºC (+14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 1401/10 Volume Control
Volume control 12 W, U40 installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1401/10**

LBC 1401/20 Volume Control
Volume control 12 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1401/20**

LBC 1411/10 Volume Control
Volume control 36 W, U40 installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1411/10**

LBC 1411/20 Volume Control
Volume control 36 W, U40 installation type, built-in 24 VDC override relay, failsafe version, 8 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1411/20**

LBC 1420/10 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, power-save version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/10**

LBC 1420/20 Volume Control
Volume control 100 W, MKD/E2 installation type, built-in 24 VDC override relay, failsafe version, 10 attenuation steps of 2 dB and off, white RAL 9010, supplied with surface mounting box.
Order number **LBC1420/20**

LBC 1431/10 Program Selector
Program selector, U40 installation type, 5-channel selection, white RAL 9010.
Order number **LBC1431/10**

Accessories

LM1-SMB-U40
Surface mounting box for volume controls LBC1401/10, LBC1401/20, LBC1411/10, LBC1411/20, and Program Selector LBC1431/10, white RAL 9010.
Order number **LM1-SMB-U40**

LBC 14x2/x0 Japanese Volume Controls and LBC 1434/10 Program Selector

Features

- 12 W and 36 W versions
- Available in power-save or failsafe versions
- Built-in 24 VDC override relay
- Suitable for 3-wire and 4-wire systems
- Program selector with up to five channels

Bosch introduces a full range of volume controls and program selectors to provide a complete public address solution.

Functions

Operation

Public address systems are often used for both announcements and background music distribution. Volume controls can be used to adjust the level locally. In addition to volume control, program selectors can also be installed to select five different programs locally. In the event of an (emergency) announcement, the built-in relay ensures that the message is broadcast at a preset level, independent of the local volume setting.
The volume controls come in two versions according to power rating: 12 W and 36 W. The total load of the loudspeakers connected to a volume control may not exceed the rated power.
Each of the three versions is also available in two versions. One is a power-saving, 4-wire volume override (/10 models), where the override relay is activated during an emergency call. The other is a failsafe, 4-wire volume override (/20 models), where the override relay is deactivated during an emergency call.
The design and color are unobtrusive in any interior. Ease of installation, operation and reliability is optimized in the design.

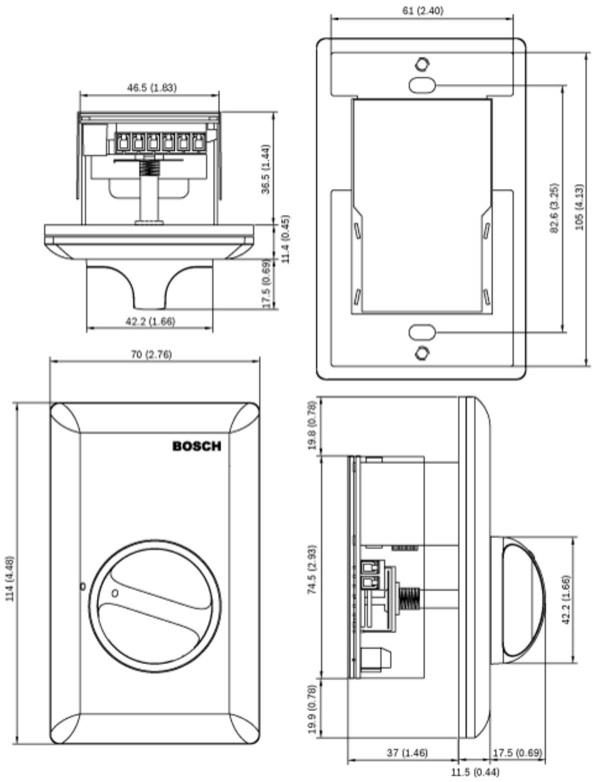
Interconnections

Screw connections

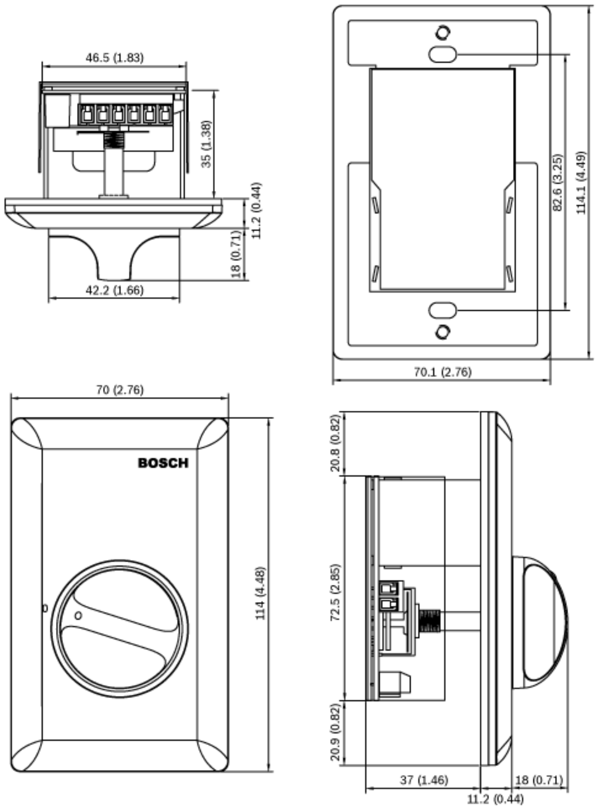
Certifications and approvals

Safety	acc. to EN 60065
Self-extinguishing	acc. to UL 94 VO

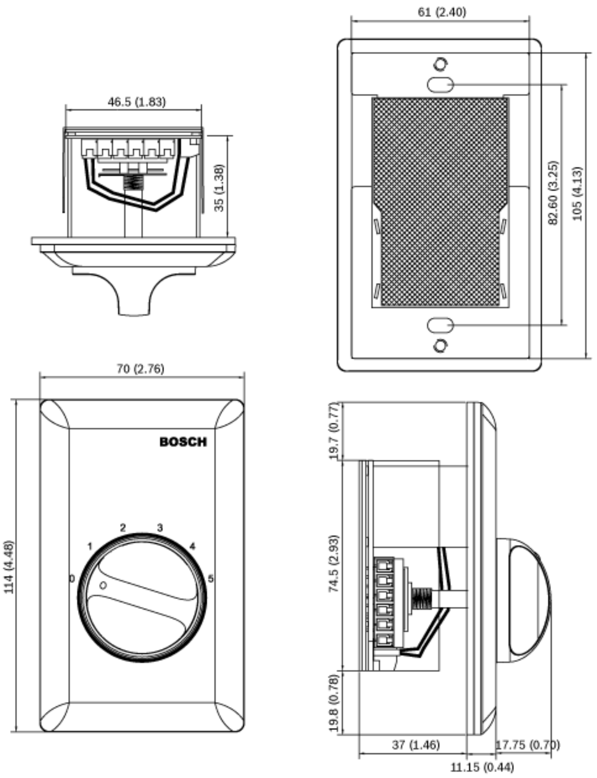
Installation/configuration notes


61 (2.40)
46.5 (1.83)
36.5 (1.44)
11.4 (0.45)
17.5 (0.69)
42.2 (1.66)
82.6 (3.25)
105 (4.13)
70 (2.76)
BOSCH
114 (4.48)
19.8 (0.78)
74.5 (2.93)
19.9 (0.78)
42.2 (1.66)
37 (1.46)
17.5 (0.69)
11.5 (0.44)

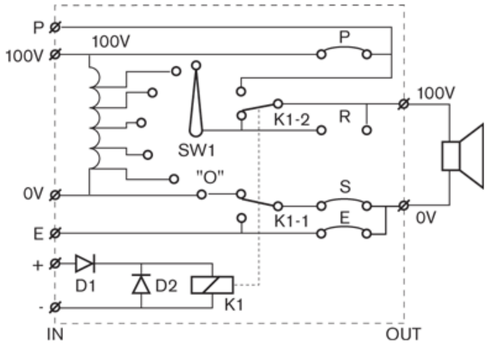
LBC 1402/10 and LBC 1402/20 dimensions in mm


46.5 (1.83)
35 (1.38)
11.2 (0.44)
18 (0.71)
42.2 (1.66)
82.6 (3.25)
114.1 (4.49)
70.1 (2.76)
70 (2.76)
BOSCH
114 (4.48)
20.8 (0.82)
72.5 (2.85)
20.9 (0.82)
37 (1.46)
18 (0.71)
11.2 (0.44)

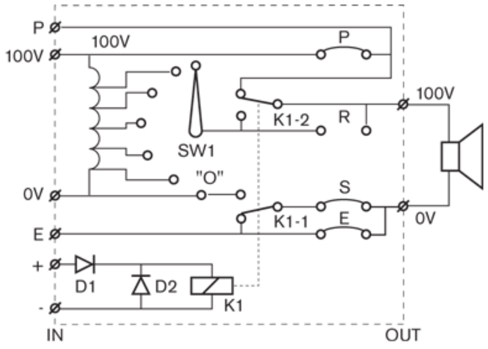
LBC 1412/10 and LBC 1412/20 dimensions in mm


46.5 (1.83)
35 (1.38)
61 (2.40)
82.60 (3.25)
105 (4.13)
70 (2.76)
BOSCH
0
1
2
3
4
5
114 (4.48)
19.7 (0.77)
74.5 (2.93)
19.8 (0.78)
37 (1.46)
17.75 (0.70)
11.15 (0.44)

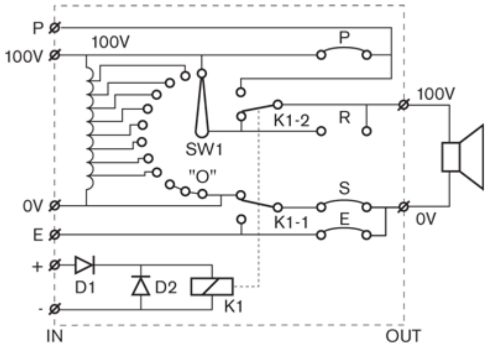
LBC 1434/10 dimensions in mm


P
100V
100V
P
K1-2
R
SW1
"O"
100V
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

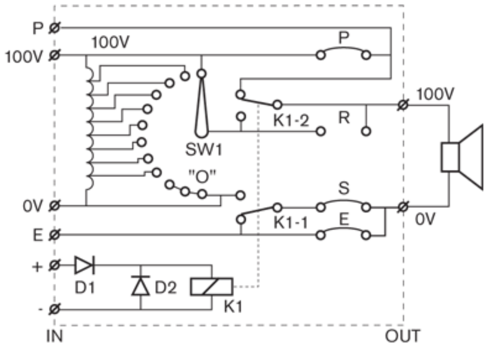
LBC 1402/10 circuit diagram


P
100V
100V
P
K1-2
R
SW1
"O"
100V
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

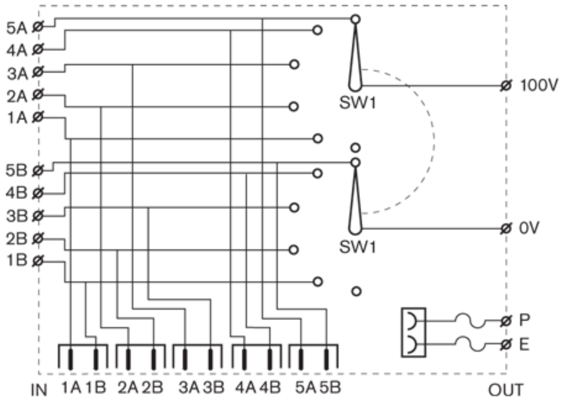
LBC 1402/20 circuit diagram


P
100V
100V
P
K1-2
R
SW1
"O"
100V
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

LBC 1412/10 circuit diagram


P
100V
100V
P
K1-2
R
SW1
"O"
100V
0V
S
K1-1
E
0V
E
+
D1
D2
K1
-
IN
OUT

LBC 1412/20 circuit diagram


5A
4A
3A
2A
1A
5B
4B
3B
2B
1B
SW1
100V
SW1
0V
P
E
IN
1A 1B
2A 2B
3A 3B
4A 4B
5A 5B
OUT

LBC 1434/10 circuit diagram

Technical specifications

Electrical

LBC 1402/10 and /20	
Rated power	12 W
Input voltage	100 V
Attenuation steps	5 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1412/10 and /20	

Rated power	36 W
Input voltage	100 V
Attenuation steps	8 x 3 dB + off
Frequency response	50 Hz to 20 kHz (-1 dB)
THD	<0.5%
Current consumption	20 mA at 24 VDC
LBC 1434/10	
Rated power	100 W
Input voltage	100 V
Number of programs	5 programs + off

Mechanical

LBC 1402/10 and /20	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	210 g
Color	Off-white (RAL 9010)
LBC 1412/10 and /20	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	260 g
Color	Off-white (RAL 9010)
LBC 1434/10	
Dimensions (W x H x D)	70 x 114 x 48.2 mm
Weight	200 g
Color	Off-white (RAL 9010)

Environmental

Operating temperature	-10 ºC to +55 ºC (14 ºF to +131 ºF)
Storage temperature	-40 ºC to +70 ºC (-40 ºF to +158 ºF)
Relative humidity	<95%

Ordering information

LBC 1402/10 Volume Control
Volume control 12 W, Japanese installation type, built-in 24 VDC override relay, power-save version, 5 attenuation steps of 3 dB and off, white RAL 9010.
Order number **LBC1402/10**

LBC 1412/10 Volume Control
Volume control 36 W, Japanese installation type, built-in 24 VDC override relay, power-save version, 8 attenuation steps of 3 dB and off, white RAL9010.
Order number **LBC1412/10**

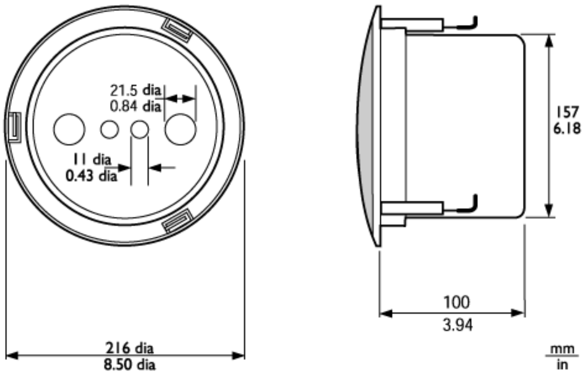
LBC 1434/10 Program Selector
Program selector, Japanese installation type, 5 channel selection, white RAL 9010.
Order number **LBC1434/10**

LBC 3081/02 Fire Dome

During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a steel fire dome (LBC 3081/02). This optional fire dome is clicked into the mounting-ring via three leaf springs, before the loudspeaker is inserted. For extra convenience, a safety cord from the fire dome allows the installer to temporarily hang the loudspeaker unit during installation. This cord also provides reassurance after installation. The fire-dome has knockout holes for two grommets (supplied) and two cable glands (PG 13). This fire dome can only be used with the LBC 3086/41 Ceiling Loudspeaker.

Notice
Product photo includes LBC 3086/41

Installation/configuration notes



LBC3086/41 + LBC 3081/02 fire dome assembly dimensions in mm (in)

Parts included

Quantity	Components
1	LBC 3081/02 Fire Dome
1	Safety cord
2	Rubber grommets

Technical specifications

Mechanical

Dimensions (dia. x max. depth)	157 x 70 mm (6.2 x 2.8 in)
Weight	360 g (0.8 lb)
Color	Flame red (RAL 3000)
Certified B15	Acc. to DIN 4102

Ordering information

LBC 3081/02 Fire Dome
Metal fire dome for LBC 3086/41 ceiling loudspeaker, flame red RAL 3000.
Order number **LBC3081/02**

LBC 3082/00 Fire Dome

During a fire, the ceiling cavity in which loudspeakers are installed can allow flames to spread throughout a building. To prevent fire entering the cavity via the loudspeaker, the ceiling loudspeaker can be fitted with a steel fire dome. This optional fire dome is mounted on the loudspeaker assembly using four self-tapping screws supplied with the fire dome. The fire dome has knockout holes for two grommets (supplied) and two cable glands (PG 13).
This fire dome can only be used with the LBC 3099/41 Ceiling Loudspeaker.

Certifications and approvals

B15	DIN 4102-8

Region	Certification
Europe	CE

Parts included

Quantity	Components
1	LBC 3082/00 Fire Dome
4	Self tapping screws
2	Rubber grommets

Technical specifications

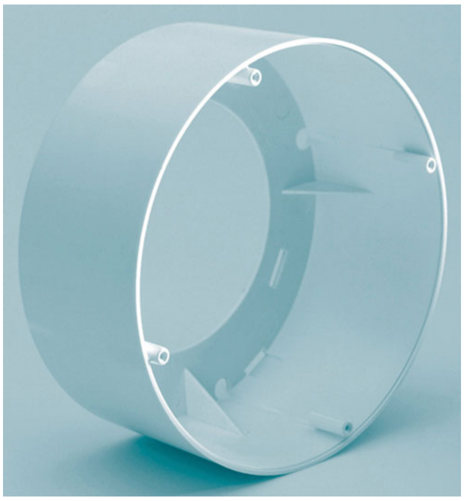
Mechanical

Dimensions (dia. x max. depth)	182 x 100 mm (7.2 x 3.9 in)
Weight	540 g (1.19 lb)
Color	Flame red (RAL 3000)

Ordering information

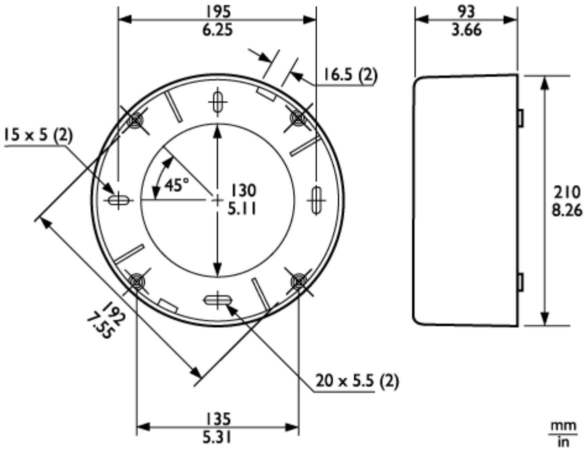
LBC 3082/00 Fire Dome
Metal fire dome for LBC 3099/41 ceiling loudspeaker, Flame red RAL 3000.
Order number **LBC 3082/00**

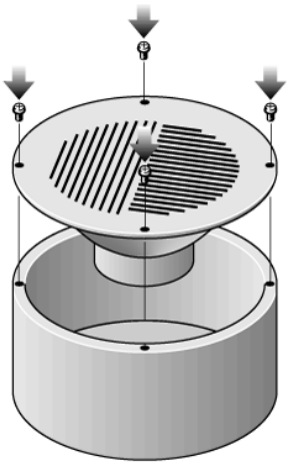
LBC 3091/01 Surface Mounting Box



For mounting onto the surface of a wall or ceiling, the color-matched surface mounting box LBC 3091/01 is available.

Technical specifications


195
6.25
16.5 (2)
15 x 5 (2)
45°
130
5.11
192
7.55
20 x 5.5 (2)
135
5.31
93
3.66
210
8.26
mm
in



Dimensions (dia. X max. depth)	210 x 93 mm (8.3 x 3.6 in)
Colour	White (RAL 9010)
Weight	290 g (0.6 lb)

Ordering information

LBC 3091/01 Surface Mounting Box
Surface mounting box for securing ceiling loudspeaker LBC3090/01 to walls or hard ceilings.
Order number **LBC 3091/01**

IP Rating

A two-digit number (as specified in Australian Standards AS 1939 and EN 60529) is used to provide an IP-rating to a piece of electronic equipment ,or to an enclosure for electronic equipment.
The two digits represent three different forms of environmental influence:

- The first digit represents protection against ingress of solid objects
- The second digit represents protection against ingress of liquids

The larger the value of each digit, the greater the protection from that influence. As an example, a product rated as IP 57 would be better protected against environmental factors than another similar product that was only rated as IP 43.

Value	First Digit	Second Digit
	Protection against ingress of solids	Protection against ingress of liquids
0	No protection	No protection
1	Protected against solid objects over 50 mm e.g. hands, large tools.	Protected against vertically falling drops of water.
2	Protected against solid objects over 12 mm e.g. fingertips, large tools.	Protected against direct sprays of water up to 15° from vertical.
3	Protected against solid objects over 2.5 mm e.g. wire, small tools.	Protected against direct sprays of water up to 60° from vertical.
4	Protected against solid objects over 1.0 mm e.g. wires.	Protected against water sprayed from any direction. Limited ingress permitted.
5	Limited protection against dust ingress (no harmful deposit)	Protected against low pressure water jets from any direction. Limited ingress permitted.
6	Totally protected against dust ingress.	Protected against high pressure water jets from any direction. Limited ingress permitted.
7		Protected against immersion between 15 cm and 1m.
8		Protected against long periods of immersion under pressure.